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PTEMBER, 1949
Vol. XXV, No. 11

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25 TWENTY-FIFTH YEAR OF PUBLICATION

New Products Spur Business. Alert manufacturers are out to capture the buyer's dollars with an array of new products. Some of these products have strictly a retail appeal while others are designed for industrial purposes.

To name just a few, there is a toothbrush that automatically feeds paste to the bristle ends; a new insecticide; a combination tool which, by twisting the blade, becomes a hoe, edger, scraper, sickle or axe; an improved telephone booth that is sound proof without stuffiness; a die-cast aluminum automobile door that reduces the weight of a 4-door sedan by 35-lbs.; a new spray hose made to withstand pressures up to 800-lbs. per square inch and to handle fluids that are destructive to ordinary hose.

There are many others too numerous to mention. All of these things are evidence that some manufacturers are doing something about business—not just talking about it.

* * *

Super Furniture Market. The supermarket of amplified self-service has invaded the furniture business. In New York there is such a furniture store. A few salesmen are on the floor to answer questions, such as, "Where will I find dinnette sets?" "Where are bedroom suites?" and perhaps a few technical questions.

Each piece displayed carries an information tag which reveals the type of metal or the specie of wood used, the kind of construction and finish; and, in upholstered furniture, the kind of materials and hidden construction. Price tags carry two prices, the floor price and cost of delivery. If you like it and if you can take it home with you, the floor price applies.

* * *

A Fluorescent Lamp Starter is announced which is said to eliminate short circuits, burned out transformers and danger of fire. This electronic starter has a thermal relay which automatically switches off any defective lamp that does not light within 30 seconds. Beside the safety feature, another advantage is that the electric current is not wasted.

* * *

Cotton Fabric known as aminized cotton has recently been developed according to Science Service. Through combining carboxymethyl with the cellulose atom, a cotton cloth is produced which will soak up more water, has greater resistance against rot, and will take a wider range of dyes. Another important property of the new cotton is that it can be made more water repellant.

* * *

Corner Cabinets, other than the conventional triangular design, made their appearance recently at Macy's in New York. These cabinets will fit into and fill up any corner perfectly. They take advantage of every inch of space in the now-so-popular small

(Continued on page 7)

living quarters. Instead of the ordinary triagular shelp affair, these cabinets are square, L-shaped, equipped with two doors mounted on a swivel. When either door is pushed in, rounded shelves attached to the back of the other door become accessible.

These cabinets may be used as a single unit, or as a part of a sectional group of bookcases, chests, combination desk and dressing table, radio and television. The advantage over the conventional corner cabinet is, more floor space with an equal amount of shelf space.

* * *

A New Wall Paint that contains no lime is made available for interior surfaces of farm structures and industrial buildings. It is especially adapted to certain types of food processing plants. The manufacturer says it will not chip or flake.

* * *

Wax Sprays from Can No. 1 durable Carnauba wax at the press of a finger, for furniture and automobiles, is offered by a firm in Bridgeport, Connecticut. It is offered as a household product. Doesn't water spot, chip, peel or gum up, according to the manufacturer. Simply spray on and lightly wipe the surface; no rubbing; no polishing.

* * *

Television Improvement. An important development in television glass that will provide, for the first time, sharp black and white contrast pictures, without dazzling brightness, and which may be viewed equally well in daylight or artificially lighted rooms, according to an announcement by the Pittsburgh Plate Glass Co.

Teleglas, to be used in the faces of metal picture-tubes, provides contrast ratios long sought after by television

(Continued on page 106)

FLUORESCENT FIXTURES
GIVE
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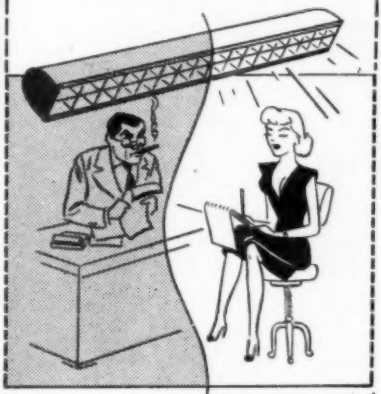

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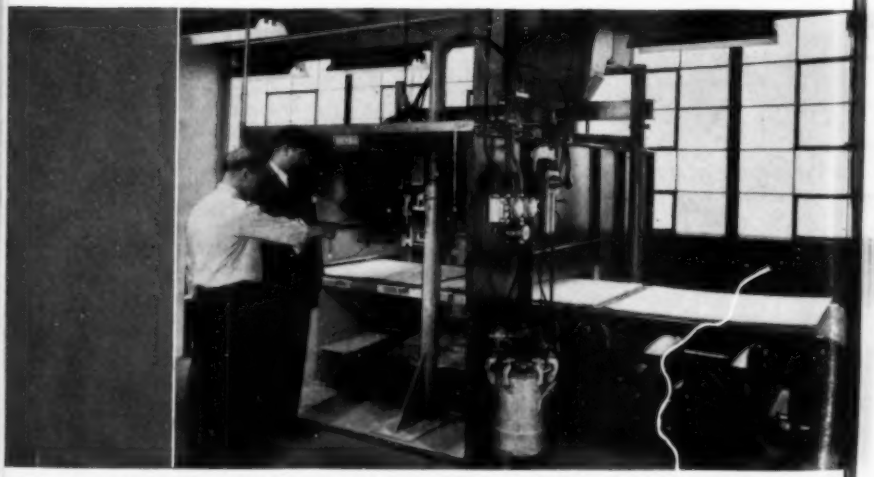

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FINISHING *Aluminum* TUBS

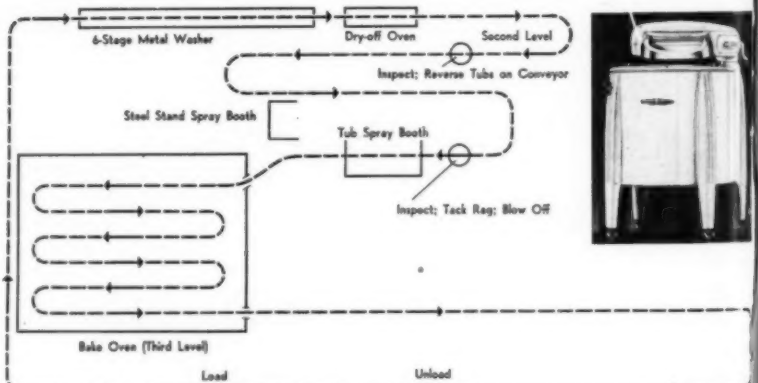
Modern production setup for cleaning, treating and white enameling the aluminum tubs and stands for Speed Queen domestic washing machines.

By P. C. Bardin
Associate Editor

A GREAT DEAL of emphasis is generally placed on the outside finish of most products—and Speed Queen Washers, manufactured at the Fond duLac Division of Barlow & Seelig Mfg. Co., are no exception. However, the finish on the inside of these tubs is equally important, for when the cover is off, the entire surface is plainly visible. Also, this finish must withstand boiling hot water, strong alkali soaps, dyes, washing powders and bleaching compounds, as well as abrasive materials such as sand particles, buttons, pins and buckles.

Severe Tests Required of Enamel for Tubs

To produce a gleaming white finish that will retain its luster on the outside of the cabinet is not too difficult, but to get the same results on the round aluminum tub, which in this particular washer is a separate unit from the cabinet is quite different. Here it is not a question of how the tub looks when it leaves the plant, but how it will look after it has been subjected to a year or two year's of rigorous alkali attacks and the constant beating of buttons and buckles.



Using the tu

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WITH A DURABLE WHITE

Using extension nozzle to spray paint into interiors of tubs. Notice, at extreme right, that the tub leaving booth has been reversed to protect its coating from any flying dust.

For this particular model it was impossible to turn to a ceramic finish, since an aluminum tub is used. After much searching and comparative testing and close cooperation between suppliers of finishes and the company, an organic finish was adopted, which, according to the manufacturer's tests withstands hot alkali solutions for 4800 hours, a 20% solution of salt spray at 95° F. for 1200 hours, and a hot caustic dip which attacked the bare aluminum back, but had no effect upon the painted surface. Finally on abrasion, using the Gardner sand test, with ten points representing perfection, this surface achieved a rating of eight points.

Conditioning All Tubs to Receive White Enamel

Several preparatory steps are to be explained before going into surface preparation and finishing operations. These round aluminum tubs are bowl shaped, 22-in. in diameter and 14½-in. deep, with a

roll rim around the top. In the roll rim around the top there is a weep hole to drain solutions and water during surface preparations. The bottom of the tub has one large shaft hole, six bolt holes and a water drain hole.

Double hangers are attached to the tub by means of four of the bolt holes so that the tub may be suspended from the conveyor right side up, as it is used in the washing machine, or upside down. The hanger on the convex side (outside of tub) is made in such a way that when attached, the tub will be slightly tilted toward the ¼-in. weep hole in the roll rim. This is done to insure proper drainage in the metal washer.

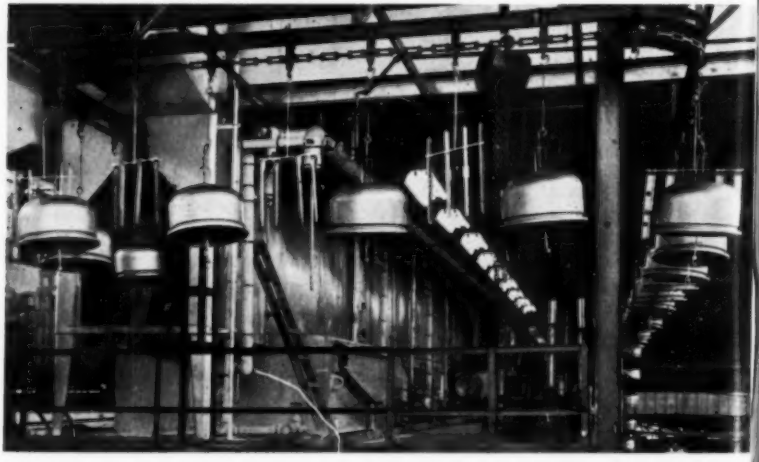
The hanger on the concave side (inside of tub) is fitted with a bearing which allows the tub to rotate with ease. This is provided so that the tub may be whirled during spray finishing operations.

The finishing room has three levels. All loading and unloading of the conveyor is on the ground level. Metal cleaning, surface preparation and spray finishing all take place on the second level. Bake ovens are on the third level.

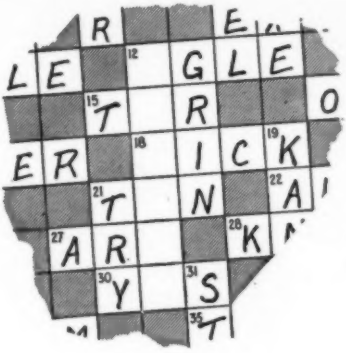
The finish conveyor is an overhead chain supported by a monorail 2400-ft. long, with hangers spaced on 2-ft. centers. The chain operates through a variable-speed drive at the rate of 8-ft. per minute.

Aluminum Surfaces Are Washed and Alodized

Tubs are suspended on the conveyor upside down, that is with the convex side up, to be carried into the 6-stage metal washer. This



Washer tubs entering metal washer, at left, for cleaning and Alodine treatment. Parts for steel stands are racked between tubs. Note double hangers on tubs so they can be reversed.



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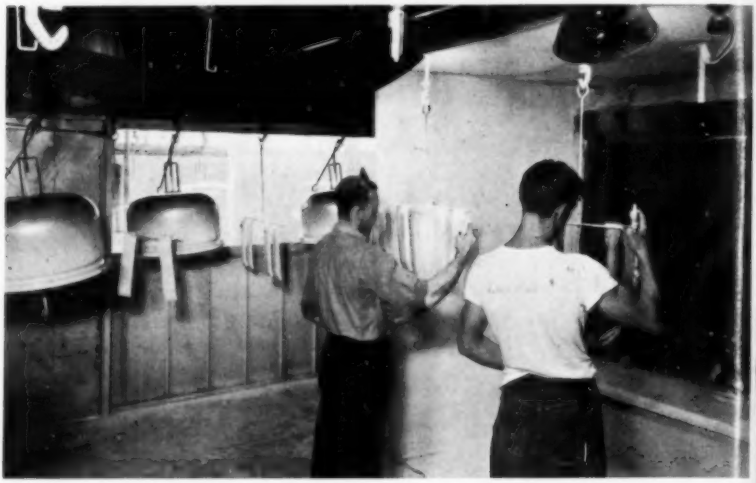


Spray painting parts for steel stands, working in a booth located between conveyor lines.

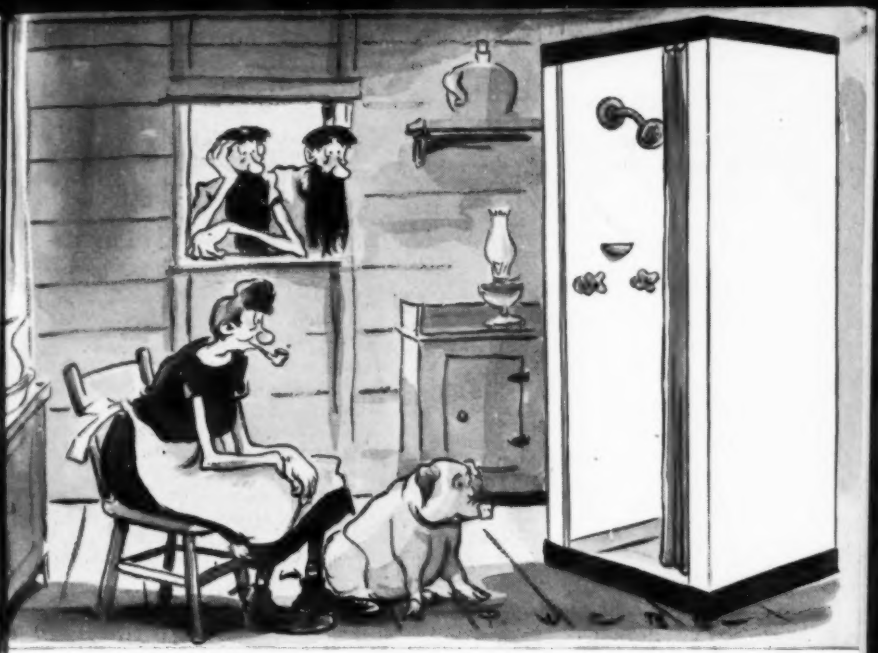
washer has spray heads on four sides so that all surfaces of the tubs, inside and outside, are treated. In the first stage an alkali cleaner is sprayed at 160° F. In the second, a mild alkali solution, with emulsion added, is applied at 130° F. Next is a cold water rinse followed by Alodine treatment at 120° F. Then tubs pass through a cold water rinse and in the sixth stage a mild chromic acid is sprayed on cold.

Tubs then pass through a gas-fired dryoff oven wherein the heat is maintained at 350° F. Total time in washer and dry-off oven is 17 minutes.

Alkali, Impact Resistant Coating is Applied

Just after leaving the dry-off oven the roll rims of tubs are inspected and any remaining moisture is blown off and wiped. The workman then reverses the tub on the conveyor so that the concave or open side is up. About 15 minutes cooling time is allowed. Just before tubs enter the 2-man, water-curtain spray booth, they are inspected, tack ragged and "blown off."

In the booth, the first operator applies a coat of white synthetic enamel, using a modern spray gun with a 14-in. extension nozzle. The material is applied at a viscosity of 19 seconds at 78° F., No. 4 Ford cup. In spraying, the atomizing pressure is 65-lbs., and fluid pressure is 20-lbs. About one minute of flow-out time elapses before the tubs reach the second operator who applies an identical coat. Both operators whirl the tubs during the spraying. Immediately after the



"Course we'll never have runnin' water out here . . . but maw just couldn't resist that VEDOC finish."

Long wearing, highly resistant to soaps, alkalies, heat and moisture *VEDOC* is one baked finish that is really hard to pass up. Applicable for pressed wood or metal, you'll find *VEDOC* provides excellent coverage and is available in one or two-coat systems. Baking time for pressed wood: 20 minutes for the primer at 275° F and 20 minutes at 300° F for the finish coat. For metal finishing—20 minutes at 300° F or seven minutes with Infrared Drying. Write today; we'll be glad to send you a quotation for ten gallons—or fifty drums.

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second wet coat is put on, the operator reverses the tub on the conveyor to protect the inside surface from any dust or flying particles.

Tubs proceed to an A-type, gas-fired, convection oven on the third level where the finish is baked for 22 minutes at 425° F. Upon leaving the oven, tubs travel about 30 minutes back to ground level where they are unloaded and placed in individual corrugated cartons to protect them against damage until assembled.

Same Enamel Used on Steel Stands

Parts for stationary steel wash-tub stands are located on the conveyor between tubs. Two operators working at a water-curtain booth located just outside the exit end of the tub spray booth and between conveyor lines, remove racks containing these parts and spray on a coat of the same material.

Parts are then placed back on the conveyor to be baked along with the tubs. These stand parts do not necessarily require an alkali resistant finish of so high a quality. However, in using the same conveyor and oven, it has been found advisable to use the same material as is applied on the tubs. Thus the stands really receive a tough durable finish.

Proper Gun Grip

WE OLDER MEN in the finishing industry have learned to eliminate, as much as possible, any unnecessary moves or extra work that might result through the use of improper methods.

For the beginner in spraying it seems natural to grip the spray gun as he would a pistol, with forefinger on the trigger; or he may use his index and middle finger. Notice how the gun is tilted downward if held this way, causing a strain on the wrist and forearm muscles.

Now place the index finger directly out on the gun toward the nozzle, gripping the trigger with the middle and third fingers. Notice how the gun rests in a natural easy horizontal position, with a minimum of strain on the wrist and arm. This is especially true when a heavy material cup is used with the spray gun.

This technique of holding the spray gun may seem to be a minor detail, but when a man sprays all day long, any slight change to ease his work is worth trying.—JOE PETERSON.

Winchester Chemical & Paint Corp.

An announcement from the above named firm, located at 123 Lumber St., Athol, Mass., states that it is a "new corporation organized for the primary purpose of supplying manufacturers with custom made finishes to meet special requirements." The firm's chemists have had wide experience in this field. The company manufactures varnishes, lacquers, thinners, adhesives and specialties.

Detrex Corp. Appoints Two Cleaning Consultants

L. Camel, Sales Manager of the industrial division of Detrex Corporation, Detroit 32, Mich., announces the appointment of two Detrex specialists on alkali and emulsion cleaning to the consultation service of the company.

Mr. W. H. Webb, who has had many years of experience with Detrex in analyzing cleaning applications of specialized nature, has been placed in charge of the alkali and emulsion phases of sales, service, and consultation in central United States. His broad technical knowledge on the use of such compounds and modern cleaning methods in general will be of great value to the metal fabricating and finishing industries.

Alan Harris, who for some time has been concentrating his efforts on the field development work of Detrex cleaning compounds, will serve the metal industry in the Detroit area.

for Bus-Bar Ducts

By J. A. Unger, Plant Engineer
Bulldog Electric Products Co.

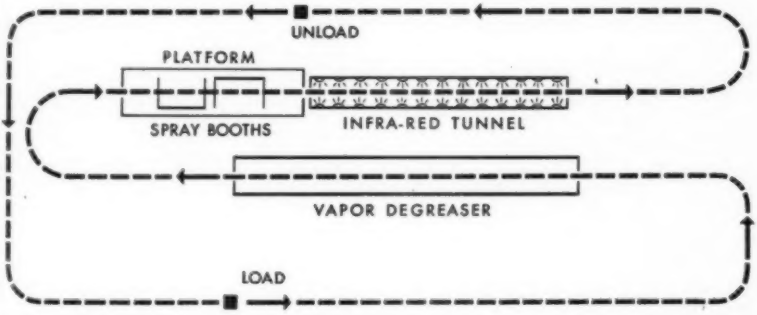
EFFICIENCY in operating the modern industrial plant demands flexibility in the electrical distribution system. An enclosed bus-bar distribution system permits all operating equipment to be moved quickly and economically from place to place according to production demands; in fact, it is a system of permanent, safe wiring that has all of the advantages of temporary unsightly wiring — for example, easy accessibility, etc.

The long shallow sections of all metal enclosure for these bus duct systems, combined with edgewise elbows, tees and crosses, posed a problem in painting and baking. Surface cleaning and spray painting offered little difficulty; however, in baking the finish on elbows, tees and crosses, we felt that we needed an infra-red oven 36-in. wide. For flat parts, an oven width of only 12-in. was required. This did present a difficulty. The finish requirements are reasonably simple. We do not strive for beauty but we want a presentable appearance, excellent adhesion and practical durability.

Conveyor Layout; Infra-Red Oven

In simplicity one often finds an answer to the knottiest problem. In the accompanying layout you will notice the direction of conveyor travel.

Plating tanks are in a separate room and are serviced by an overhead trolley. In the finishing room, only the vapor degreaser is at floor level. Spray booths and the infra-



Floor plan layout of conveyorized setup for cleaning, painting and baking metal ducts.

red oven are elevated 25-ft. above the floor, thus providing useful working space underneath them.

The infra-red tunnel is mechanically adjustable in width from 12-in. to 36-in. The overhead monorail conveyor has hangers spaced on 24-in. centers and is operated at two speeds—9-ft. per minute on the heavier gauge metal parts and 12-ft. per minute on 16 and 18-gauge metal parts. The infra-red oven develops a temperature of 375° F. At a conveyor speed of 9-ft. per minute the baking period is four to five minutes, and at 12-ft. per minute it is three minutes.

Surface Preparation and Controls for Operation

Before painting, bus duct parts are zinc plated, and those parts to receive paint are given an anozinc bath for seven minutes at 80° to 90° F. A period of about 40 minutes is consumed in plating operations based on a 7-minute cycle. Parts are then hung on the overhead conveyor.

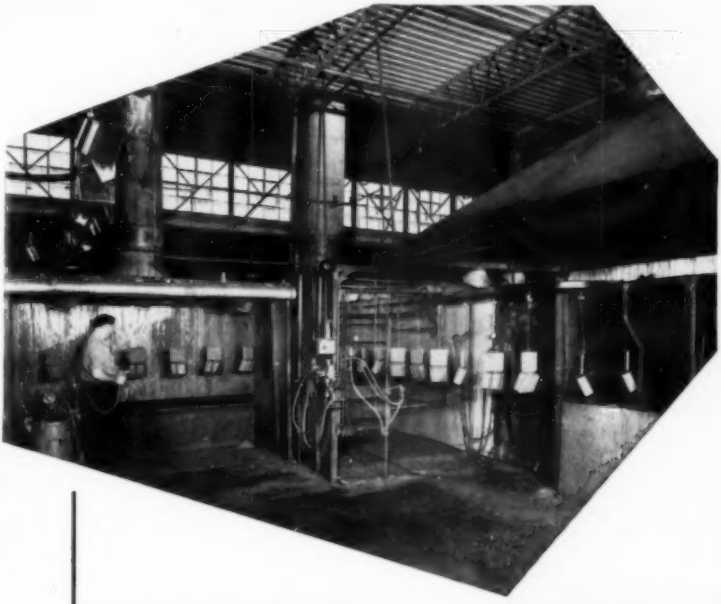
Four long duct sections are hung horizontally on racks which, in turn, are suspended from the conveyor hooks. Elbows, tees and crosses are hung individually on separate hooks. Care is used in loading the conveyor so that there will be fairly long runs of parts that are about the same size, shape and gauge of metal. This is done to avoid frequent changing of the width of the infra-red tunnel and the conveyor speed.

All parts go through the vapor degreaser where they are cleaned by both the vapor and trichlorethylene sprayed on the surface.

Spray Painting and Controls for Operation

Cleaned parts pass through two reversed spray booths where each side is given a coat of black synthetic enamel. This material is used at a viscosity of 18 seconds at 70° F., measured by a No. 4 Ford cup. After a flow-out time of one minute, the painted parts are

A peek into the infra-red tunnel where four long bus duct sections are passing through. For all narrow parts, the adjustable oven is closed to its narrowest limit. Photograph courtesy of Jensen Specialties, Inc.



Hand Touch-Up *Does* Pay Off...

One man handles the entire painting operation at Ohio Can and Crown!

Most of this lunch-box is *automatically* sprayed with Ransburg's Electrostatic Process . . . the "shielded" *interior* only is touched-up by hand.

This combination has been paying off for many months by creating new business—through savings passed on to customers.

"Formerly a highly experienced sprayer could produce 500 boxes per *day* with about 15% rejects. Now, *one man turns out 500 per hour* with practically no rejects and greatly improved quality," reports Ohio Can and Crown.

And Electro-Spray efficiency saves other ways, too—$264 a month *on booth clean-up alone*, for example

Maybe you also can obtain a worthwhile competitive edge with Electro-Spray. Why not write Ransburg today—outlining your requirements.

RANSBURG ELECTRO-COATING CORP., Indianapolis 7, Indiana

baked three or four minutes at 375° F., depending upon the gauge of the metal.

Controls for operating the width of the infra-red tunnel, are located outside the second spray booth. The operator of this booth adjusts the width of the oven to accommodate the size of the parts going through. Conveyor speed is predetermined as to the parts going through and is adjusted at the motor drive.

Care of Spray Guns

By George A. Conrad

DESPITE THE FACT that spray guns are precision tools and probably the most important in the finishing room, they are not always given the care to which they are entitled. It is neither expensive nor laborious to keep them clean inside and out. A few drops of oil daily in the right places will not only keep them working smoothly but will add to their useful life.

Every spray operator should be furnished with a container of clean solvent and a brush. These he should use to clean away material that accumulates around the air cap. Occasionally it is advisable to place the air-cap in solvent to soak out any paint that may have lodged in the air passages. In order that time may be saved it is economical to have one or more spare guns on hand.

Some work requires crossing the strokes; sometimes this can be done by turning the gun or the turntable. However, there are times when this cross-stroking can be accomplished more easily by turning the air-cap to reverse the fan. If much of this must be done, the air-cap and ring may be lubricated with a little vaseline wherever they contact each other or the tip.

Three of the most important components of your spray gun, insofar as operation is concerned, are the fluid tip, the fluid needle, and the needle packing. If the needle fails to sit perfectly in the tip—or if the packing does not fit snugly around the needle—the spray will sputter if a suction cup is used, or paint will leak if the gun is used in connection with gravity or pressure feed.

The most common cause of improper seating of the needle is the presence of dried paint or dirt; this must be removed. Carelessness may result in a bent needle. If this is the case, never try to straighten it! Buy a new one.

Before a new fluid-tip or a needle is put in the spray gun, a good trick is to lap-grind them to insure a perfect seat. In a wood block, drill a short hole just large enough to hold the fluid tip snugly, with the threads up. Place a bit of valve-grinding compound on the taper of the fluid needle and seat it in the tip. Be sure that it is centered while rotating the needle. Lift the needle occasionally to change its position and spread the compound. Only a little grinding is required. Be sure to wash out every trace of compound when finished. It is a good idea to keep spare sets of tips and needles which have been "lapped" together, for emergencies.

The fluid needle packing is usually of felt or leather, impregnated with graphite. The packing nut keeps it just snug enough. If it is too tight, it may retard the needle, allowing paint to leak from the tip. If too loose, some paint may leak through the packing. Of the two, the latter is the lesser evil. A better way is to keep the needle and the packing clean and well lubricated. Each night, back off the nut and apply a few drops of light oil and dust graphite to the packing. This will soak in during the night, insuring smooth action next day.

PRODUCTION PAINTING OF METAL FOR *Power Shovel Cabs*

Methods and equipment used in a comparatively small paint shop in which all sheet metal panels and various other parts for cabs are cleaned by hand, spray painted in a down-draft booth and then moved by overhead conveyor into and through an infra-red baking oven.

By WALTER RUDOLPH

FOUR MEN, working in a 30x-40-ft. paint department, clean, paint and rack the component sheet metal parts for power-shovel cab panels and related parts at the Thew Shovel Co., Lorain, Ohio. They get out sheet metal parts for about three complete cabs daily. An adjustable, manually-operated monorail conveyor about 25-ft. in length, an overhead power conveyor system 70-ft. in length, an infra-red baking oven, and several other features make this economical operation feasible.

Two men clean cab parts and hang them to a conveyor that passes through the spray booth. One man

Close-up of a finished cab in service. Its brilliant quality finish has real weatherability.

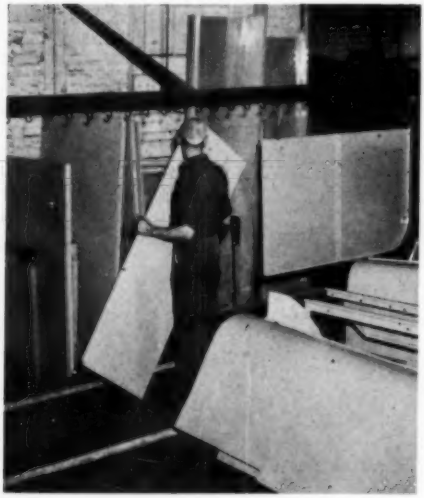
transfers parts from the paint booth conveyor to the baking conveyor; another man does the spray painting and cares for painting equipment and supplies. The Thew Shovel Co. strives to produce a durable brilliant finish that will withstand all kinds of working conditions and practically all extremes of weather.

Cleaning and Wiping; Sanding and Wiping

Unpainted parts for cabs are stored in steel racks near the paint department. Cleaning in preparation for painting proceeds as follows: Surfaces are swabbed with cleaning fluid and then wiped with clean rags to pick up and remove all foreign matter. The cleaning fluid is in safety containers to minimize the fire hazard, as this department is not entirely walled off from the machine shop.

Two 15-gallon paint containers are located near the spray booth. One is used to store next day's paint, so its temperature will be equalized with room air before it is used. Worker here is ready to place a 10-gallon container inside one of the pressure tanks for a switch to a different color.

Finished pieces leave oven as they travel around the turn at right; they are taken off the conveyor and "banked" for at least four hours before assembly.



An air hose is used to blow cleaning fluid and foreign matter from ridges, depressions and metal overlaps. Cab panels are laid out flat on wooden "horses" for the cleaning operation. Abrasive paper (No. 0 and No. 00) is used after the first cleaning to remove any slight score marks or rust. A second wiping with cleaning fluid follows; then the surfaces are wiped dry with clean rags.

Spray Painting Over Open Grille Work

The cleaned pieces are moved a short distance and hung to an overhead conveyor which leads to the paint spray booth. This 25-ft. monorail conveyor is adjustable; that is, half of it can be moved about

DURO-COTE AIR DRY ENAMEL

GIVES YOU SUPERIOR COLOR RETENTION AND HIGH BUILD!

The history of DURO-COTE is filled with successes where other enamels have failed. Exceptionally tough — high in surface resistance — DURO-COTE is giving manufacturers of kitchen cabinets, refrigerators, furniture, fixtures — yes, and toilet seats, all they've hoped for in durability and colorful sales appeal.

No matter what may be YOUR PRODUCT — if conditions require Air Dry Enamel — investigate DURO-COTE. The chances are DURO-COTE is what YOUR PRODUCT NEEDS!

DURO-COTE can be formulated for severest outdoor exposure.

Available in White and ANY COLOR in gloss, semi-gloss, or satin sheen. *Write for Your Sample Panel and Detailed Information.*

SYN-FOR DURO FINISH

O'NEIL DURO COMPANY

MILWAUKEE 7, WISCONSIN

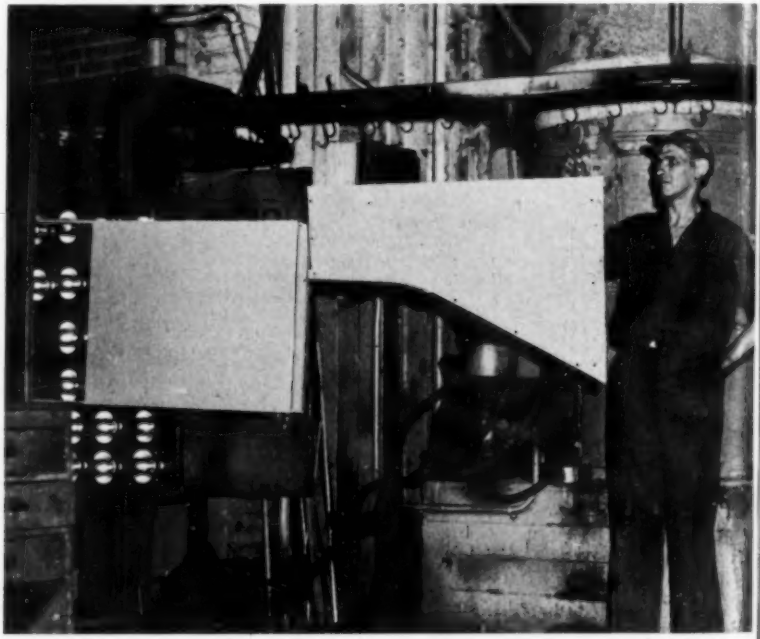
Manufacturers of Enamels and Lacquers for over 50 years

35°, "breaking" at a swivel point just in front of the paint spray booth. The movable part of the monorail conveyor slightly resembles the moving arm on a jib crane; it can be swung in a small arc to aid workers in the handling of heavy cab panels.

Cab pieces are hung by heavy wire hooks which, in turn, are hung to T-hangers traveling under the monorail conveyor which extends into and out of the paint spray booth like a trolley. The paint spray booth is about 10-ft. square; it has steel sides 7-ft. high and an open doorway. The spray booth floor consists of heavy steel grating to permit down-draft ventilation. Paint particles from overspray are collected in an under-floor waterfall arrangement and reclaimed.

Conditioning and Mixing Paint for Spraying

Every day a supply of paint for use the following day is brought into the shop from an outside storage building. As a result of being stored inside for 24 hours before use, the paint's temperature reaches room temperature (about 70° F.)



Hang-on station for sending cab pieces through the infra-red baking oven at left. A period of about eight minutes elapses as the pieces pass through this infra-red tunnel.

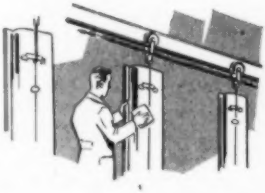
STOP!

don't shoot yet . . .

The biggest obstacles to good paint, varnish or enamel jobs are the little particles and specks of grit, dust and lint, that accumulate on the surfaces to be finished. They cannot be gotten rid of with a dry cloth or with an air hose. The only way to effectively remove them is with a Tack Rag.

The "Dust-All" Tack Rag chemically treated for the purpose, used for wiping surfaces before finishing, is definite assurance at the cost of only a few pennies, that a satisfactory finish job will result.

Ask us about the "Dust-All" Tack Rag; what it will do; how it will actually save money on finishing operations.



The
"DUST-ALL"
TACK RAG
Be sure you get it in the Red Checked Bag

Used on practically any type of product (metal or wood) the "Dust-All" Tack Rag will help eliminate spoilages and assure a finer finish.

HARDING
Manufacturing Co.

10606 Gratiot Ave., Detroit 13, Mich.

and is ready for use the next day on steel panels and cab parts that are the same temperature. This equalizing of paint and steel temperatures contributes toward a more even flow of paint in the spraying process.

Two 15-gallon containers, for storing paint in the shop, are positioned in a small covered enclosure at one side of the paint spray booth. To save time and effort in switching temporarily from one color to another in painting, 10-gallon containers of the desired color are inserted in the 15-gallon containers. This is illustrated in one of the accompanying pictures.

Mist Coat; Wet Coat; Infra-Red Drying

Two coats of paint are applied. The first is a mist coat; it is allowed to flash dry for setting up; and the second is a heavy "wet" coat. After the final coat has been sprayed, the cab pieces are moved out of the spray booth and transferred from the monorail to a motorized loop conveyor for travel through an infra-red baking oven. About eight minutes are allowed for passage through the oven.

Upon leaving the baking oven the conveyor doubles back and travels along steel racks near the final assembly area. Cab pieces are removed from the conveyor and temporarily stored in these racks. They are allowed to cure at least four hours before being used in actual assembly of a power-shovel cab. Upon completion of its assembly, every cab is carefully inspected and any spray touch-up work that may be needed is performed.

Rubbed-Effect Lacquers

IN THE FINISHING of products on which no rubbing is required the sprayer should regulate the desired sheen according to the contour of the piece to be finished. In other words, a flat area will require a higher sheen than a curved surface. This is caused by reflections.

A good plan is to purchase a lacquer of the lowest sheen used and bring it up to a higher luster by adding gloss lacquer. This is easier, simpler and more practical than to add a concentrated flat-base agent to gloss lacquer to dull the sheen. In my finishing job shop I carry only two clear lacquers for the bulk of my work—namely dead flat and gloss. In this way I get the type of finish I want and I hold down the number of items carried in stock.—JOE PETERSON.

New Process Engineering Department at Detrex

Detrex Corp., announces a newly created Process Engineering Department. This department will investigate and make recommendations on operating methods and fabricating processes. It will also exercise complete quality inspection control on all manufactured items except solvent and cleaning compounds. This includes degreasing and metal parts, washing machinery. The main plant and offices of Detrex Corp. are at 14331 Woodrow Wilson, Box 501, Detroit 32, Mich.

American-Marietta Changes Name of Leon Finch, Ltd.

The corporate name of Leon Finch, Ltd., Los Angeles, California, has been changed to American-Marietta Co. of California.

In October 1945, the American-Marietta Co. acquired the ownership and has operated Leon Finch, Ltd. as a wholly owned subsidiary. This company is a leading West Coast manufacturer of lacquers and enamels for finishing industrial products. Also, a complete line of automotive refinishing materials is manufactured.

Mr. Leon Finch, who founded the firm in 1931, has retired due to ill health. He has been general manager since the company's inception and continued in this capacity until recently.

The better the finish, the better the buy!

This is the slogan now being used to remind your customers that a good buy starts with a good finish.

And arresting advertisements like the one at left, in four of the nation's top magazines* point out that a better finish means more beauty, longer life for every piece of furniture, every appliance used in the home, the school, the office.

More beauty and greater durability for everything from diaper pins to caskets.

And these advertisements mean that thirty-two million Americans (including those who buy your products) are going to take a closer look at the finish in the future.

Are you sure that you are using the best, the most durable, *most saleable* finish on *your* products? It's always wise to START YOUR BUYING WITH THE FINISH IN MIND!

*See *Time*—
September 19, 1949
Country Gentleman—
September, 1949
Better Homes and Gardens—
September, 1949
The Saturday Evening Post—
August 13, 1949

LACQUER ASSOCIATION, INC., WASHINGTON, D. C.

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Process Paint and Floc

ATHLETIC SHIRTS, which include all cotton T-shirts and wool sweat-shirts, are necessary adjuncts to everyone who participates in any type of sport from football to table tennis. Teams are sponsored by schools, clubs and business firms. For instance, some business house, church or club may put one or more teams in league bowling. Shirts worn by the players must be lettered to identify the team or sponsor.

By I. LEVINSON
Plant Manager, Ampeco

Sifting colored flock on stenciled adhesive of insignia patches. These patches lie flat on a striped canvas which is vibrated by square beater bars rotating rapidly underneath it.

IDENTIFY TEAM'S SHIRTS

Lettered athletic shirts were quite expensive when cut-out felt designs and letters had to be sewed on. Now, through the means of silk-screen process printing and flock, a fast, efficient and economical method of identifying all kinds of athletic shirts has been developed.

Because some of the teams are composed of comparatively few players, the number of shirts to be printed is generally small, averag-

With a squeegee she presses process paint through a screen stencil onto shirts which are held flat and firm by an inserted fiber board panel.

How shirts for your favorite athletic team are printed by a screen process, and how those insignia patches are printed and coated with colored flock—all on a production basis, even on small quantity jobs.

Even though the shirts are soft, the 3/16-in. fiber board panel provides a firm foundation for the complete screen printing operation.

ing between 12 and 25. However re-orders are frequent because a sponsor will probably have a baseball or softball team in the summer, a bowling team in the fall and perhaps a basketball team in the winter and spring.

Small lots, frequent re-orders, plus the type of product—these factors make screen printing of shirts somewhat different from that of other articles. First, the screen frame is not hinged to the table top. Most of the screen frames are small, averaging only about 14-in. square. They are generally made of soft wood ¾ x 1 or 1¼-in. Second, because of re-orders, all screen process frames are stored in indexed racks where they remain "filed" until needed.

It would not be economical to remove the stencil after each run. For this reason we use process organdy instead of silk, as the investment in silk would be too great, due to the number of screens involved. The organdy we use is 60-in. wide and has 109 meshes to the inch, which makes it equal to No. 10 silk.

Make Ready, Printing and Packing Crews

The crew is divided into three sections — make-ready, operating and packing. The make-ready crew selects the quantity, size and type of shirts required for an order. To give the printing surface of each shirt rigidity while it is being printed, a member of the make-ready crew inserts a shaped fiber board panel inside the upper half of the shirt. The screen frame—either a new one or, in the case of a re-order, one from the storage

"How to Grow Hair on Plaster"...

Here, comfortably stretched out yet faithfully alert, lies man's best friend — cast of colorless plaster. Thru sprayed-on flock, this Cocker attained a soft, richly colorful coat ...was transformed into a thorobred's champion ready for "show". Decoratively, its flocked finish adds realism, eye and sales appeal — while functionally, provides a protective bottom surface that prevents wear and marring. Whether for novelty or industrial purposes, Claremont Flock can serve your product advantageously in many ways — at least cost. Investigate its possibilities.

Claremont Flock is uniform; responds perfectly to adhesive preparation and forms a deep-pile foundation that won't fuzz, separate or rub-off! Easily applied to glass, wood, paper, metal, fabric or plastic of any shape or size. Available in neutral shades and 18 brilliant colors. Complete details available. Write Claremont today!

Golden brown flocked Cocker Spaniel is pictured approximately half-size

CLAREMONT WASTE MFG. CO.

CLAREMONT, NEW HAMPSHIRE

racks — accompanies each lot of shirts to one of the process operators. An instruction slip indicates the color to be applied and which side (front or back) is to be printed.

Now to the operating crew. The operator stacks the entire lot of shirts on the table, centers the frame on the top shirt and proceeds to print one at a time. We use a special textile ink and apply it with a flexible rubber squeegee. The working edge of the squeegee is square to produce firm, clean-cut lines. The ink is used as it comes from the container; no thinner is added. This produces a solid opaque printing job.

Process Ink Dried in Infra-Red Oven

After a shirt is printed the operator places it on a moving canvas belt conveyor which carries it through an infra-red oven where the ink is dried for 1½ minutes at 250° F. At the exit end of the oven shirts are inspected and packed for shipment.

To give you some idea of the permanence or durability of screen-printed shirts, we recently replaced a wool sweat-shirt that had been in constant use for ten years and had been laundered many times. It was literally torn to shreds, yet the insignia and club name were legible.

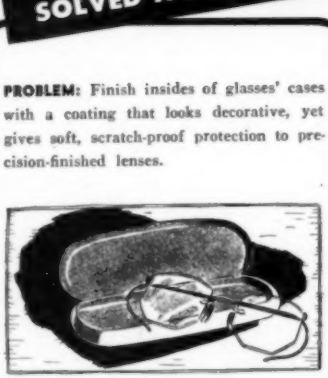
Insignia Patches Printed With Colored Flock

Most of you have seen the insignia patches worn on sports jackets to indicate the name and insignia of the team, school or club. These are cut from felt in specified colors, shapes and sizes. Using a

HOW . . .

Cellusuede **FLOCK SOLVED A PROBLEM**

PROBLEM: Finish insides of glasses' cases with a coating that looks decorative, yet gives soft, scratch-proof protection to precision-finished lenses.



SOLUTION: Rayon Cellusuede Flock did the trick on this job—effectively and economically. Also, production was materially increased over previous inner-lining methods.

How About You?

If you make any type of case or box that serves to protect jewelry, silverware, or other valuable items, look to Cellusuede Flock as the ideal functional coating. Also you'll find its velvet-like effect—plus a wide choice of colors—makes Cellusuede unparalleled for decorative appeal.

Send for Samples, Prices and Descriptive Folder.

CP

Cellusuede Products, Inc.
ROCKFORD, ILLINOIS

stencil cut with the design and lettering, a contrasting color of heavy slow-drying adhesive is screen printed on the felt piece. The table on which this work is done is near to the flocking machine so that the printed felt may be flock coated before the surface adhesive dries.

The flocking machine consists of a wood box frame with a taut flat canvas under which square beater bars revolve at high speed. The rotation of these square beater bars directly under and in contact with the taut flat canvas generates both vibration and static electricity which causes the flock to become embedded in the wet adhesive. Flock fibers (1-mm.) similar in color to the adhesive are used.

The excess flock is shaken off the felts and they are placed on the conveyor belt to be carried through an infra-red oven to dry. Flocked felts are then allowed to air dry overnight before they are packed for shipment.

Silicone Finishes

By M. A. G.

ALTHOUGH they have been on the market for only a few years, silicone resins have caused a stir already being felt in the field of paint technology.

Silicone resins may be considered as composed of an organic head tied to an inorganic body. The organic head makes silicone resins soluble, so that they may be applied by conven-

Play Safe . . . . . Use
NAZ-DAR SUPPLIES

★ You have no regrets when you use NAZ-DAR QUALITY Silk Screen material and supplies.

For a quarter of a century we have been headquarters for everything connected with the Silk Screen industry, building up an enviable reputation for fine quality merchandise and reliable service.

We make the famous YELLOW LABEL and BLUE LABEL Process Colors, WEATHERPROOF Silk Screen Enamel, Silk Screen Lacquer and many other products. Our line includes Decalcomania Paper, Frames, Squeegees, Cutters, etc.

For speedy, low cost printing, use NAZ-DAR Photographic or Hand Cut Plates.

★ *Write Dept. IF9-49 for information or copy of our catalog No. 25.*

Naz-Dar Company
469-483 MILWAUKEE AVE., CHICAGO 10, ILL.

tional methods. The inorganic body, based on silica or quartz, imparts heat-resistant qualities to the silicone resins, since the heat-resistant properties of quartz have long been known.

Two or three years ago silicone base finishes appeared on the market. These early finishes were largely aluminum in color, and were recommended for high-temperature applications to preserve appearances and to retard corrosion at continuous exposures exceeding 1000° F. This type of finish has found use in such applications as the painting of smoke stacks, mufflers, exhaust systems, oil-burning equipment, gas-burning equipment, etc. Variations of this finish in black and in metallic colors have also been developed.

Paint laboratories have, for a number of years, been attempting to develop silicone finishes that might replace porcelain on stoves and other heating equipment. The merits of silicone-base paint systems for this application are lower cost, more economical design, and ease of touch-up and repair.

After years of work, finishes have been developed which may replace porcelain on some stove parts. These special silicone finishes are available in white, ivory and darker colors. They require curing cycles varying from 30 minutes at 350° F., to 30 minutes at 400° F., depending upon the specific formulation. They are applied in one coat over cold-rolled steel. They withstand continuous exposure to temperatures exceeding 450° F. without noticeable change in color or gloss. These finishes possess a slick, mar-proof top which makes for elimination of refinishing jobs due to scratches incurred in handling.

Although the earlier silicone finishes had poor abrasion resistance and softened considerably when heated to about 300° F., the improved versions now available are much better in these respects. The latest silicone finishes intended for use on the outside of stoves are no more thermoplastic than the more conventional high-heat white baking enamels, and their abrasion resistance is almost of the same order. Their color and gloss retention are, of course, much better than the conventional high-heat finishes after long exposure at high temperatures.

With a highly competitive market already a factor to be considered, and with the indicated merits of silicone-base finishes, it seems likely that the market for these finishes will be considerably enlarged in the future.

National Safety Congress in Chicago, Oct. 24-28

Talks by important business leaders in some of America's largest companies will highlight the program of this year's National Safety Congress and Exposition, to be held in Chicago October 24-28.

Nearly 12,000 safety-minded persons from all corners of the United States and Canada and other parts of the world will meet in Chicago for five jam-packed days at the 37th annual convention of the National Safety Council.

There will be more than 200 Congress sessions on all phases of safety, and more that 500 program participants will take part in the discussions. Sessions on industrial safety will be held at the Stevens, Congress and Morrison hotels.

Finishes for Industrial Products

"Finishes for Industrial Products" was the subject of a lecture given recently by Mr. H. H. Corbin, President of Standard Varnish Works, New York, before a group of designers and engineers gathered for an Industrial Design Seminar at Lehigh University, Bethlehem, Penna.

Mr. Corbin was assisted in his presentation by Mr. Carl Bauer, Standard Varnish Works' Industrial Sales Manager.

Mr. Corbin and Mr. Bauer centered their remarks and illustrative material about the importance of the selection of the proper type of finish for each individual industrial application. Use was made during Mr. Corbin's lecture, of quantities of panels, each coated with a finish developed in the Standard Varnish Works laboratories for specific production projects.

Mr. Corbin is an alumnus of Lehigh University, Class of 1925.

"Haw! Too slippery for you, eh?"

To get a finish on a product and make it stick can be quite a problem at times. On mirror-bright chromium plate, for example.

A manufacturer was faced with that problem on chromium plated refrigerator shelves. And he asked Unichrome engineers to see what they could do.

Neglecting not one single requirement of shelf service, they formulated a Unichrome finish that gave him clarity, resistance to humidity, food chemicals, abrasion—as well as remarkable adhesion to chromium. Today, it is one of the most popular and widely-used finishes for chromium shelves!

Would you like to try out our thinking on *your* problem? Write us about it.

Remember—a "fresh viewpoint" often works wonders!

UNICHROME

LACQUERS, SYNTHETICS, BAKING ENAMELS

Products of the Organic Coatings Division of UNITED CHROMIUM, Incorporated
51 East 42nd Street, New York 17, N.Y.
Detroit • Waterbury • Chicago • Dayton • Los Angeles

ANOTHER TECHNIQUE FOR FINISHING

Leather Top Tables

By DANIEL DEROGEE
Foreman Finisher

HAVING HAD over 22 years experience as a furniture finisher, I was interested in an article under the above title by A. F. Christy, published in July issue of this magazine. After reading the article I decided to write and tell you about the method we use to finish our leather-top tables.

To begin with, we use a method which I believe is much faster and simpler, but we produce exceptionally good results. I am in charge of a finishing room here in Grand Rapids, Mich., and it takes me about three days to get our leathertop tables through the finishing rooms.

NGR Stain on Wood; Wash Coat; Sand; Fill

Instead of a water stain, we use an NGR (non-grain-rising) stain. This eliminates the operation of sanding raised grain after the stained surfaces are dry. The NGR stain we use is a fast-drying stain and can be washcoated in about 30 minutes.

When the washcoat has dried about 30 minutes we give the surface a light sanding followed by a clean wipe-off, and are then ready to proceed with filling. We have had excellent results with a 4-hour filler which we buy in semi-paste form. The rims and side rails of tables are filled, but we use an oil wiping stain, colored like the filler, for our table bases. This oil stain is sprayed on after the filler has been brushed on. After the proper "setting" time has elapsed, the complete table is wiped clean. The oil stain left in the pores of the wood gives it a filled effect.

We used to dip the table bases but this proved unsatisfactory as the stain would keep running out of cracks, making it necessary to keep on rewiping the stained surfaces.

Dry After Filling; Sealer Coat; Shading; Lacquer

After the filling operation, the tables are allowed to dry overnight. Then a coat of 21% solids sealer is sprayed on. About one hour of drying time is allowed and the tables are sanded and shaded with a lacquer shader to even up and match any light wood that may show. After this operation, a coat of semi-gloss lacquer of 27% solids is sprayed on. This is allowed to dry about two hours before the second and final coat is sprayed.

Our leather is purchased in a buff color finish. The leather is cut along a pattern the same size as the area to be covered. Because the

leather has to be stretched to obtain a smooth job, it is not necessary to mask the wood that is to be covered with leather, as overspray does not impair the adhesion of leather to wood. We use a white paste glue and once the leather is glued down it is almost impossible to remove it in one piece without taking some wood slivers along with it. In those rare cases where the leather has to be removed we cut it into strips about 2-in. or 3-in. wide before attempting to pull it loose from the wood top.

As to the finishing of the leather, after cutting it to size, a lacquer shader is sprayed on around the edges and on a few spots near the center. This material dries almost immediately; then a coat of leather lacquer is sprayed on. After this coat has dried for about one hour, the leather is ready to be glued onto the table top.

Technique of Applying and Finishing Leather

Glue is applied to the leather, not to the wood. The leather, with its coating of glue, is carefully positioned on the table top, then pressed down and stretched with a wooden tool shaped like a paddle with thin rounded edge. Stretching the leather with this tool from center to edges removes any air bubbles which might collect under the leather. The edges are then carefully trimmed with a sharp knife. Surplus glue is wiped off the rim with a rag dampened by water. The glued top is allowed to dry for about 20 or 30 minutes so the glue becomes well "set" before any other operation is started.

Our next operation is to spray on a second coat of leather lacquer; this covers both the leather and the table rim. After this second coat has dried for one hour, we proceed with our color padding, using a lacquer-base padding stain. When the desired effect has been obtained, another and final coat of clear leather lacquer is sprayed on.

Gold and Blind Tooling; Seal Gold with Lacquer

When the last coat of lacquer has dried for about 1½ hours, we proceed with our gold and blind tooling, using an electrically heated brass wheel with embossed design. For the blind tooling we use a black ribbon which eliminates having to rub stain or color into the tooled area. Then we seal only the gold tooled area with a clear padding lacquer. The tables are completely steelwooled, rubbed, and waxed, with the exception of the leather.

Our final leather operation is a very light sanding of the leather to remove any rough spots. We finish up with a clear transparent padding lacquer, covering both leather and rims. As a final touch, to produce a beautiful luster, the tops are lightly padded with a pad slightly dampened by wood alcohol. No rubbing, waxing or buffing of the tops is necessary.

We have had exceptionally good results with this method and have received many compliments on our finish.

Fire destruction is a matter of national concern. Prevention of fire is regarded as an important attribute of good citizenship.

COMPLE

The two interior views
are typical: The left view
equipment on the groun
where equipment for Pi
Cleaning and Rust Pre
Spraying and Dip Enam
operations is located. Th
view shows equipment
second floor level whic
mally includes: Filtere
Supply System, Drying
Baking Ovens, Automati
perature Control Panel
Safety Devices, Exhaus
Recirculating Fans and

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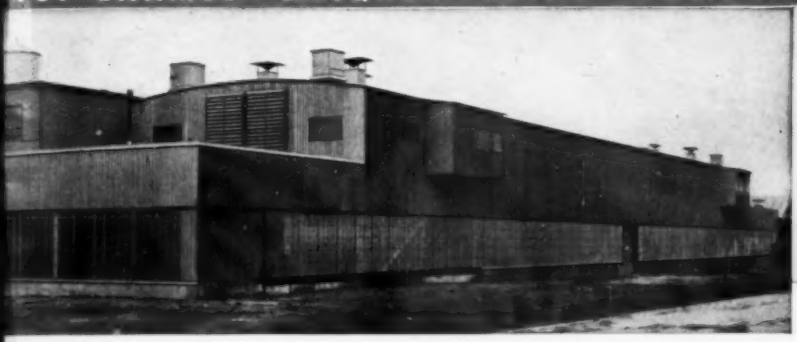
Finishing SYSTEMS

for ENAMEL • LACQUER • PAINT • VARNISH



Self-Housed Finishing Systems Permit Freedom in Planning . . . Save Valuable Floor Space in Manufacturing Buildings!

In these pages are shown three typical self-housed Mahon Finishing Systems installed outside adjacent to manufacturing buildings. Other similar installations have been made on the roof of manufacturing plants. The trend throughout industry today is toward this type of highly efficient, compact, self-housed finishing system—the reasons are obvious: (1) It permits freedom in planning, which results in better co-ordination, 100% operating efficiency, and lower production cost per unit processed. (2) It saves valuable floor space in manufacturing buildings. (3) Inasmuch as the housing becomes an integral part of the finishing system, the housing cost per cu. ft. is, comparatively speaking, surprisingly low. The outer shell is insulated steel walls and roof—permanent, all-weather construction used extensively in the construction of modern industrial plants. The entire contract is handled by the Mahon organization—one responsibility for final results. If you are contemplating new finishing equipment, it will pay you to investigate the many advantages of a modern Mahon Self-Housed Finishing System. Remember that the Mahon organization has pioneered development in this highly specialized field for twenty-nine years . . constant research, experimentation and world-wide experience, in every industry where finishing constitutes a major production operation, has endowed Mahon engineers with a wealth of technical knowledge and practical know-how not available to you elsewhere.

THE R. C. MAHON COMPANY

HOME OFFICE and PLANT, Detroit 11, Mich. • WESTERN SALES DIVISION, Chicago 4, Ill.

Engineers and Manufacturers of Complete Finishing Systems—including Pickling Equipment, Metal Cleaning and Rust Proofing Equipment, Dry-off Ovens, Hydro-Filter Spray Booths, Filtered Air Supply Systems, and Drying and Baking Ovens. Also, Core Ovens, Hydro-Foam Dust Collectors, and many other Units of Special Production Equipment.

MAHON

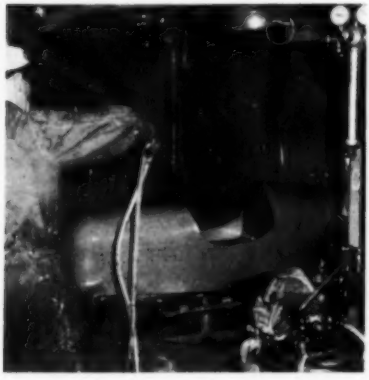
METHODS USED IN CANADIAN PLANT FOR

Painting Toys

By RONALD J. COOKE

LINE BROS. Ltd. of Montreal, a Canadian manufacturer of children's wheelbarrows, automobiles, wagons and other metal toys has introduced conveyor-line production painting in its plant. This firm is one of the largest manufacturers of toys in the British Empire. The Canadian plant includes 150,000-sq. ft. of buildings which were used during the war to build motor torpedo boats. Renovation of the plant included installation of several thousand feet of conveyors.

A belt conveyor system is used for the assembly of products, while overhead single-chain conveyors are used in finishing operations. Speed of the conveyors varies between 3-ft. and 9-ft. a minute, depending upon the operation.



Spray painting body of a small racing car.

After leaving the metal working departments, parts for the more expensive articles, such as bicycle frames, are shot-blasted before they are hung by steel hooks to overhead conveyors. They travel in two straight rows and then move upward to the degreasing tanks which are at mezzanine height. The trip through the degreasing tanks cleans the surfaces thoroughly in preparation for painting.

Spray Painting and Baking the Finish

Spray painting is done in two water-fall type spray booths which are located beside the conveyors. Articles are individually removed from the conveyors and placed on a turntable in the spray booth, where they are spray painted in one of six different colors. The company reports that youngsters prefer colors of red, yellow, blue or cream. About 200 gallons of paint, including primer are used every week. Metal toys receive one coat of primer and one coat of enamel. Wooden toys are spray painted with an air-drying material.

The spray painting of any single item in the line requires only about 40 seconds. As each item is spray painted it is again hung to the

LOWER PRODUCT FINISHING COSTS

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1. **SAVES PAINT** — more efficient, uniform paint distribution.
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Put Brake Shoe MICRO-SPRAY Guns on *your* finishing line. Then compare all performance factors . . . four-way economy, quality of finish, simplicity and ease of using, and speed. Your own findings will convince you that Brake Shoe MICRO-SPRAY Guns deserve a "steady job" on your finishing line . . . helping you produce better finishes . . . faster . . . at lower cost.

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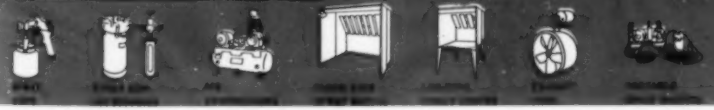
AMERICAN Brake Shoe COMPANY

builds better
PAINT SPRAY EQUIPMENT
for profitable product finishing



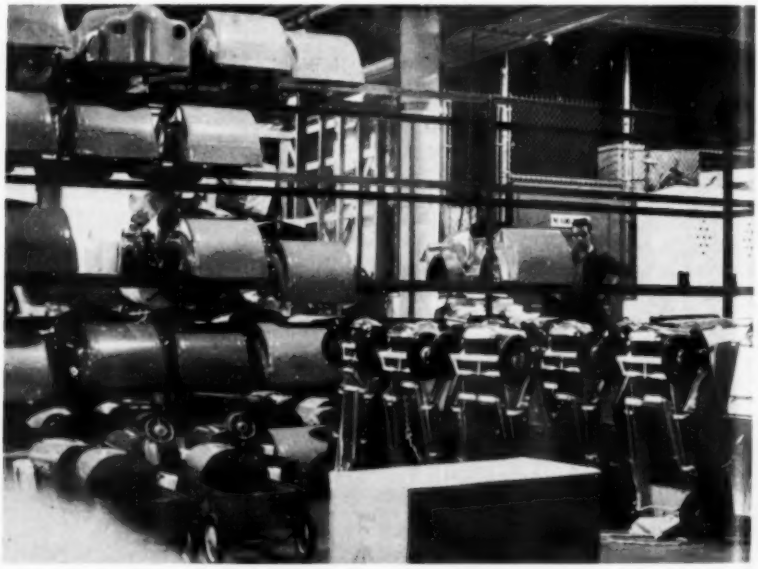
conveyor. Then it travels along and up to a 50-ft. oven which is at mezzanine height to give more working space below. Each article requires ten minutes to travel through the oven. The 200° F. oven heat is produced by gas burners generating infra-red radiation.

Two conveyor lines loaded with metal parts move upward, turn and then descend as they pass into the vapor degreaser.

The bake-finished parts then travel back under the oven and into another section of the plant where they are stacked and made ready for assembly.

Not all parts are painted by spraying. Some of them are hand-dipped in a large tank. These dipped articles are hung to the conveyor and sent through the baking oven also.

Any items that do not pass inspection, after leaving the oven, are removed and hung to the conveyor. They are sent through the degreas-



Here painted toy car bodies are placed in racks and later fitted with painted wheels.

with Monsanto finish

Monsanto's specially developed range of *colorful* metal enamels is keyed to the latest consumer preferences.

These modern baked enamel finishes have outstanding chip resistance, excellent adherence, extra high gloss in the Bridg-Mor bridge set by Hampden Specialty Products, Inc., Easthampton, Mass.

Hampden finds Monsanto enamels mean more efficient production . . . new production economies. Baking time is shortened. Furniture comes out of the oven dried and cured ready for immediate packing even on warm, humid days.

Like Hampden, many other *mass-production* businesses boost sales and cut unit costs with Monsanto finishes. For information on Monsanto finishes for your products, clip the coupon below.

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ing setup and then conveyed through the painting-drying operations again.

The building in which this painting setup is housed has thousands of glass window panes, and Lines Bros. soon discovered that the glare from the sun was causing excessive eye fatigue among employees and reducing production. To eliminate this source of employee discomfort the window panes were given a coat of thin semi-transparent light blue flat paint. The company reports that this painting of windows has ended the glare trouble without materially affecting the amount of light that enters the building.

What A Spray Gun Will Do

By W. Beacham

A WELL DESIGNED and accurately made spray gun breaks up and finally atomizes the paint particles and blows them in a given direction. That's all the spray gun will do. The rest is up to the operator. Just because you may want to but can't successfully spray cement which is forced out of suspension under pressure and clogs the nozzle, or to spray a heavy glue which cools the moment it hits the air outside the atomizing nozzle and produces a rough dry finish, that is no reason to blame the spray gun.

If you have been led to believe that a spray gun can spray any liquid, this doesn't mean that the job you are attempting to do can be done by spraying.

The modern paint spray gun was originally designed to spray paints, not plaster, plastics, mud and sand. There are some instances where these latter items can be sprayed—when they are held in suspension with materials without a surface tension—but under ordinary conditions they cannot be sprayed successfully.

Your spray equipment manufacturer's salesman is eager to help you and will refer your problem to his firm's laboratory, and he may be disappointed when the laboratory tells him it can't be done; he may agree with you when you tell him that Smith Bros. is doing the job with a spray gun. There is this very small point to remember. You don't know what Smith Bros. is adding to its materials to hold the solids in suspension. The laboratory is considering whether they will be forced to live with the problem for several weeks.

We must take into consideration that there is only a nominal profit from the sale of a spray gun. If a laboratory expert is required to make several service calls after the sale of a few spray guns at, let us say $35.00 each, the profit will soon be eaten up.

Your spray equipment manufacturer will test your material for standard spraying application and if he tells you he would not recommend spraying, you can be sure you will be in trouble to attempt spraying. But if you think that he is wrong, don't raise hullaballoo with the salesman. Buy a spray gun yourself and try it. It's cheaper for you to lose $35.00 than to have a high-priced expert's salary tacked on to your spray equipment so that not only you, but every other user of spray equipment must help pay the bill because you do not believe what the spray-gun maker's laboratory tests have proved.

H. B. Downs Becomes Sales Manager for Solventol

Promotion of Howard B. Downs to the post of General Sales Manager at Solventol Chemical Products was announced this week by C. A. Campbell, President of the Detroit firm which manufactures synthetic organic cleaning compounds.

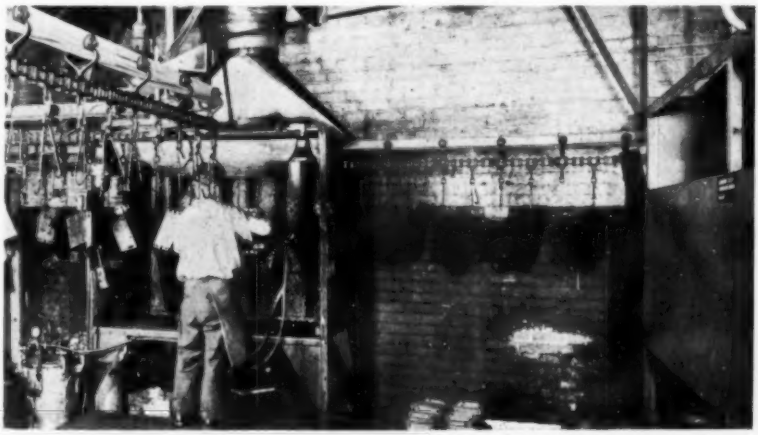
Painting TRANSFORMER BOXES BLACK

By A. D. Walter

Plant Manager for the Dongan Electric Mfg. Co.

IN THE manufacture of power step-down transformers for electric signs, oil burners, signaling and control work, the painting of the transformer box is an important consideration. The protective coating must have a presentable appearance, excellent adhesion, and it must be as nearly as possible mar-proof and scratch-proof because transformers are installed on the job. Durability is necessary, since transformers may be placed outside in hot dry air, or in moist salt air, or in cold damp subcellars, or in overheated boiler rooms.

These requirements would not be too difficult to meet with proper surface cleaning and a high quality synthetic enamel, but the question is, how much heat will a finish stand



Spraying transformer boxes with black synthetic enamel. Infra-red oven is at right.

after it is baked on and cooled? On transformer boxes it must resist 400° F. and not chip, peel, print or scratch. I shall explain why this condition exists, why procedure cannot be changed, and how the job is successfully accomplished.

Cleaned and Coated with Black Synthetic Enamel

After passing through the vapor degreaser, the metal boxes are hung on an overhead monorail conveyor which passes through the spray booth. Here they are given a coat of specially formulated black synthetic enamel. A flow-out period of about five minutes is allowed before they enter an infra-red oven where the finish is baked four minutes at 300° F. The coated metal boxes cool as they travel to the assembly department where elements are inserted and lead wires and terminals are attached.

Filling transformer boxes with asphalt and silica flour heated to 325° F. The black enamel finish on the outside of box must resist this high temperature.

Filling Assembled Boxes With "Black Plastic"

Four or more transformers, depending upon their size, are placed on a board, with a sheet of asbestos between the metal box and the wood. Assembled transformers travel along on a horizontal roller conveyor to the filler line where the boxes are filled with a mixture of asphalt and silica flour heated to 325° F. This "plastic" anchors the element in proper position in the transformer box. When the filled transformers are cool enough to handle, a cover that has the name and specification plate is attached to each box. The transformer is now ready to be packed.

Why Boxes Can't Be Painted After Filling

Now you may wonder why the transformer boxes couldn't have the elements inserted and filled with the hot mixture before the black enamel is sprayed on the outside. Reason is that if this were done, lead wires, terminals and porcelain would be coated with black enamel. Also, insulation on the wires would be damaged by the heat in the infra-red oven.

The procedure just outlined could not be changed; the finish requirements were fixed, and we did have a problem in fulfilling these specifications. With two fixed factors there remained only the material which could be changed. Correct formulation of material solved our problem satisfactorily.

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THE USE OF THINNER IN FINISHING MATERIALS

By Raymond C. Adams
Technical Director
Gilman Paint & Varnish Co.

Why thinner is used in paint, varnish, lacquer and synthetics, how it affects the material to which it is added, what becomes of it, and why we must observe care in the selection and purchase of thinners for finishing.

OF THE THREE components of paint (pigment, vehicle and thinner) the performance of thinner is unquestionably the simplest, but it is often misunderstood. Sometimes poor film appearance or even film failure is blamed on the thinner. A common expression is, "The thinner burned up the paint."

It is often difficult to talk to people about thinners. They have their own ideas and if they are a customer you usually let them think whatever they wish. Actually, thinner is used *to reduce the consistency and make the properties such that the paint can be applied by the desired method of brush, dip or spray.* Other components of the paint are either solid or at least viscous enough to make the paint impossible or impractical to apply without the use of thinner.

Why Thinner is Used and What It Should Do

After a paint film has been applied the thinner completely evaporates, leaving the pigment and vehicle as the only film-forming ingredients. From this it is obvious that the thinner plays no part in the properties of the dried film if it has functioned properly.

A thinner functions properly when its solvency and rate of evaporation are such that, while it is in the applied film and as it evaporates, it allows the film to set in a homogeneous manner free from incompatability and pinholes, and with a minimum of little or no runs, depending upon proper application. This might seem a little complicated but it really isn't. The two properties of solvency and evaporation will be discussed here separately.

Solvency Characteristics of Thinners Used by Finishers

In any type of paint the pigment is dispersed in the vehicle and the vehicle, in turn, is dispersed or dissolved by the thinner. (The chem-

istry and physics of solvents and solvency is somewhat more involved than the layman realizes, and for the purpose of this discussion the term "dissolved" will be used when referring to the thinning of paint with thinners, even though it is not exactly a proper scientific expression).

The pigment is not dissolved by the thinner; just the vehicle is dissolved. The pigment particles are dispersed, or what might be referred to as completely surrounded by the vehicle so that when the vehicle is dissolved the pigment is automatically carried into solution. Obviously, since many types of vehicles are used in various types of paints, enamels and lacquers, there must be several types of thinners required. The nature of the vehicle determines what thinner should be used in the material.

Thinner May Contain Three to Five Solvents

It often happens, as in the case of lacquers, that the lacquer thinner is composed of several different solvents. In this discussion we shall consider a *solvent* to be a single material and a *thinner* to be composed of one or more solvents. In lacquer thinner usually from three to five solvents are required. On the other hand, with most enamels and paints, rarely more than two and usually just one solvent is all that is required as the thinner.

With lacquer and certain other types of paints, the vehicle is a blend of several materials, each of which requires a different solvent to dissolve it. That is the reason why lacquer thinner is composed of at least two and usually three to five solvents. With a product like house paint the situation is different. Here the vehicle is usually composed of linseed oil or a mixture of linseed and some other oil. These oils, however, all have similar solvency and so only one solvent, either mineral spirits or turpentine, is required.

Evaporation Rate of Thinner Affects Paint Performance

The evaporation rate of a thinner is a property that largely determines its use in brushing, dipping, spraying and roller coating application. The evaporation rate also ties in closely with solvents in instances where the thinner is composed of two or more different types of solvents. For example, in a lacquer thinner that contains several different solvents, each of which is required to dissolve some component of the vehicle, it is important that the various solvents evaporate at a uniform rate so that while the film is drying the thinner that remains has a composition comparable to what it had originally. This is to assure us that during the setting period there will be no "throw out" of any ingredients.

Petroleum and Coal Tar Solvents, and Their Uses

Some paint companies place more or less mystery around any special thinner of their manufacture that must be used with their product, even though in many instances the thinner is composed of a single solvent that can be purchased from a local petroleum company.

Certain types of paints, as for example lacquers and vinyls, require a carefully blended solvent mixture

that can be done correctly only by the paint manufacturer and no user (unless he has a paint laboratory) should try to blend these thinners. On the other hand, most every enamel that is manufactured requires a thinner that falls into one of two classes. For want of a better name, these are called: 1) Petroleum Solvents (Aliphatic Hydrocarbons) and 2) Coal Tar Solvents (Aromatic Hydrocarbons). Sometimes a thinner requires a blend of these two classes but not very often.

Uses of V M & P Naphtha; Toluol; Xylol

Paint manufacturers usually make their enamels so that they can be thinned with a single solvent from one of the two classes previously mentioned. The foregoing nomenclatures of two classes of solvents are possibly a little confusing in that during recent years coal tar solvents have also been manufactured from petroleum. Under each grouping there are two solvents of different evaporation rates that make possible their use in various types of application. Under the petroleum or aliphatic hydrocarbon classification are V. M. & P. (Varnish Makers & Painters) naphtha and mineral spirits. V. M. & P. naphtha is used for finishes that are sprayed and dipped, while mineral spirits are used for brushing and some dipping applications where a little more drain is desired.

Under the coal tar or aromatic hydrocarbon classification are toluol and xylol. Toluol is used for spraying while xylol is used where a slower thinner is desired for either spray or dip work. In general the coal tar solvents are much stronger than the petroleum type and are used in the newer type synthetic enamels of both the air-drying and baking variety.

A number of solvents are intermediate between these two groups in both solvency and evaporation, and often these intermediate solvents are more desirable for specific application.

Maas & Waldstein Has Been in Chicago 25 Years

Maas & Waldstein Co., manufacturers of lacquers, enamels and synthetic finishes, Newark, N.J., announces the 25th Anniversary of the establishment of its Mid-Western Division, which is located at 1658 Carroll Ave., Chicago 32, Ill.

During the past quarter century this division has become one of the most important supply links in the M & W organization, offering standard and special M & W finishes to manufacturers in the entire mid-west, from Eastern Ohio to Western Oklahoma and from Texas to the Great Lakes.

Customers in the East are supplied from the company's main plant in Newark, N.J., and in the West from the company's Pacific Coast Division known as the Smith-Davis Co., 10751 Venice Blvd., Los Angeles 34, Calif.

G. Klinkenstein, President of Maas & Waldstein, expressed gratification on the success of the mid-western division and promises customers improved service and quality through modern equipment.

Detrex Offers Streamlined Cleaning Consultation Service

Detrex Corporation, Detroit 32, Mich., has just established an improved type of consulting service for concerns interested in cleaning metal.

Industrial product engineering, estimating, quotations, orders, and customer field service are now combined under T. J. Kearney, Chief Engineer, in the Equipment Division. This set-up combined with direct exchange of information with the research and development department, makes complete and latest cleaning data immediately available for application to all field problems.

Detrex is thus placed in the unique position of being a company with national distribution which provides a completely integrated cleaning consultation service. The service includes all kinds of metal cleaning equipment and a full line of chemical cleaners to produce and guarantee cleaning results.

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MORE *Drying Time* WILL REMEDY MANY TROUBLES

By Edwin Hogstrom

What happens when not enough drying time is allowed after specified finishing operations such as staining, sealing, filling and the application of all top coat materials.

MANY OF OUR finishing problems and troubles could be avoided if more drying time were allowed for the materials that go into the making of a fine finish. For instance, let's begin with the staining of wood. If we use an oil stain and recoat the stained surface with a lacquer sealer in a few minutes, the stain will be picked up into the lacquer and will change the entire color of the piece of furniture; that is, the color will be different from what it would have been if the stain were allowed four to six hours of drying time before application of the sealer coat.

Insufficient Drying Time After Staining

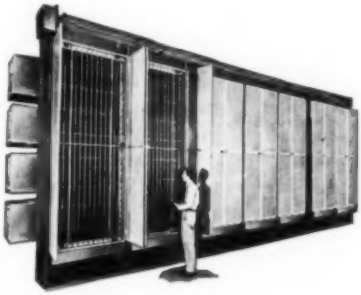
Pigment wiping stains will act similar to oil stains in color pick-up and will also cause poor adhesion of the finish coats; and where there are any carvings they will turn a white or grey color in the depressions; this is difficult to remedy without refinishing.

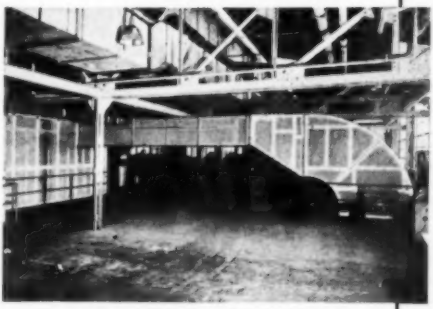
The same difference would apply if NGR stain were used and sprayed with sealer immediately—and also to water stain but in a different way. In the latter case there would be no pick-up of color but there could be a finish failure if the sealer coat were applied over the moisture in the wood. The specification for most kiln dried woods, to be successfully finished, is around 6% to 7% moisture content — and not over 11%.

When the stain isn't allowed enough time to dry before application of the sealer coat, the final finish is likely to appear foggy and greyish in the case of water stain; and it would appear either blinded or turn white in places where excess oil stain still remained. In any event, there would be no clarity of finish to be proud of. Here you see that the proper drying time and drying conditions can mean the difference between a good and a bad finish.

These troubles repeat themselves again in the case of wood fillers, with the exception that they appear

SUPER-CLEAN AIR contributes to *Pliofilm's** sales appeal





AAF Electro-Matic Precipitators guard product's Crystal-Clean Transparency during processing

FOOD products packaged in Pliofilm, made by Goodyear, are protected against air, moisture and liquids. What's more, their natural goodness is on display continually before the buyer because of Pliofilm's crystal-clear transparency.

Dust and dirt could easily mar such transparency if permitted to reach this material in the early stages of production. That's why all air supplied for the casting operation is delivered through ducts, as shown at left, after being thoroughly cleaned by AAF filters. Electro-Matic† Electronic Precipitators, similar to the units shown above, were selected because of the high degree of cleaning efficiency demanded.

Clean air has been the means of improving product quality, cutting rejects and reducing plant maintenance for many companies. But needs vary by product and industry. That's why AAF offers a complete line of filters ranging from electronic types to the simple throwaway unit. Regardless of your requirements, AAF has both the products and the engineering experience that insure the selection of the right filter for your job.

If you are interested in how clean air can cut costs in your operation, call your local AAF representative. He's the only man with a complete line of filters who can give you an unbiased answer.

**Trade-mark of The Goodyear Tire & Rubber Co., Inc.*

†Automatic electronic precipitator.

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AAF

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in a different form, such as grey pores, cloudy finish, puffing of the pores, spotty finish, pinholes, etc. Most of these objectional features are or might be due to inadequate drying time. I do not say that all filler troubles are the result of too fast a schedule, but *I know that many of them would disappear if more time were given to the drying of the filler.*

Adequate Drying After Sealer and Top Coats

Sealer troubles are not too serious and don't seem to give too much trouble, except when the sealer is used over a wet surface of stain or filler and has to take the blame for a failure that should be placed elsewhere; or where the sealer is barely dry itself when the finishing coats are applied, and then the sealer is blamed for not holding up the top coats.

Top coat materials can cause trouble when they are applied too quickly over the sealer, and then when they are recoated too fast. The result of applying a double or triple top coat too fast is that you do not get the desired build or finish that the material was formulated to give. This is a waste of both material and time, and you get an inferior finish too.

Rubbing the finish before it has properly cured and dried sufficiently for rubbing—this can cause a lot of headaches and complaints from established customers. It often produces a finish that appears blinded or greyish — one with no life; one that continually appears cloudy or with what is known as a "bloom." Too fast a rub may leave the finish looking good when the rubbing is completed, but as the lacquer dries harder the film has a tendency to shrink and the wood pores appear prominently and make the surface look as if very little finishing material had been used.

All of these little troubles plague wood finishers at times but many of them are unnecessary at any time. This holds true for the bleached finishes too, where adequate drying time is all important in the action of the chemicals used.

Your supplier of finishing materials can tell you how much drying time should be allowed for any given product before it is recoated. The finish manufacturer can also make a product that will fit into your schedule, but unless the recommended schedule is followed "to the letter" the products may not produce satisfactory results.

Why Salesmen and Paints Fail

By W. Beacham

ONE OF THE most important reasons why the customer (the firm that uses finishing materials on its products) becomes dissatisfied with a finishing material, and the reason he demands so many samples, is because he has not been supplied with complete or correct information from the paint manufacturer. Paint manufacturers may not realize it, but sometimes they pass incorrect or misleading information to their salesmen who, in turn, believing their source of information to be right, inform their customers accordingly. Sometimes a customer cannot obtain the

(Continued on page 81)

effect shown on the salesman's sample panel and, as a result, these thoughts may develop in the minds of key personnel:

Paint Shop Foreman, "That outfit's paint is N.G."

Front Office, "Is it the paint or is it our foreman that's N.G.?"

Paint Salesman, "I guess that outfit doesn't know how to spray—or else my firm gave me the wrong dope."

Paint Manufacturer, "Why is it our salesman will only sell shelf goods, and stays away from industrial accounts? He used to be a good industrial salesman."

Paint Manufacturer's Laboratory, "We know the material is O.K.; we made the tests right here; it must be the salesman; he has had such a snap during the war he has forgotten how to sell."

That salesman is the innocent one. He is doing his best to work between the customer and the paint laboratory and is getting nowhere fast. The reason is the paint laboratory is letting him down. The laboratory technician does not know what goes on in the field; or if he does, he does not honestly try to duplicate the customer's shop conditions.

First thing to remember is that the old fashioned method of syphon-type spraying is a thing of the past. The customer expects his spray operator to spray under pressure, making one or two passes over his panel to build up sufficient coating to obtain the desired hiding power. Each pass of the gun blows compressed air onto the panel, helping the thin coats of paint to dry quickly. The panel is then laid down in the free air to dry, and the drying time data is then passed on to the salesman.

Now let's take a peak at conditions in the factory where that paint is being sprayed on a production basis. The customer is drying in solvent-fume-laden air. The solvents are heavier than air and will cling close to the floor. If you walk into a drying room and smell solvents, doesn't that prove that the solvent fumes are so heavy that you are walking in a sea of solvent fumes extending from the floor to the level of your nostrils? How then can you possibly dry finishes at the same speed as the test panel that was dried in the laboratory's free air? How can you possibly obtain the same finish?

May I suggest that the paint laboratory try to duplicate the same conditions as the customer is working under? The salesman will be only too happy to tell you the make of spray gun his customer is using, the nozzle setup or combination, material and atomizing pressures, and drying conditions.

The laboratory technician should have a full set of spray nozzles and a pressure cup. It only takes a few minutes to change nozzles. Spray your test panel in one or two strokes and lay the panel at the bottom of a box to dry; this will trap some of the solvents. If it is a baked finish, bake the panel while it is still laying in the bottom of the box. Bake another panel in a wooden box which has been previously dipped in water to duplicate the same effect on the finish that high humidity will produce.

When your report is made out and placed on file, the salesman has a complete story. When his customer has a little trouble, the salesman need only refer to the file and check possible shop conditions, and come up with the correct answer.

Ed Bucy Joins Sun Chemical

The Sun Chemical Corp., Long Island City 1, N.Y., announces the appointment of Ed. H. Bucy as Sales Co-ordinator under Mr. A. C. Horn, for its divisions other than Graphic Arts. Mr. Bucy will aid these divisions in the advancement of their sales programs.

Mr. Bucy formerly was General Manager of Industrial Finishes Department of a large firm and has had many years experience in the protective coatings field.

Can Supply "Venus Lacquer"

In July issue of INDUSTRIAL FINISHING, page 49, we saw a reference to a material known as "Phenoglaze," information regarding which was required by a Scandinavian company. We are producers of a similar product known as "Venus Lacquer" which, on many trials, has shown itself to be superior to Phenoglaze.

We should be grateful if you could either pass on this information to the company concerned or, alternatively, send us the address of the company so that we can contact them ourselves.—Pinchin, Johnson & Associates Ltd., England.

Information supplied by mail.—ED.

We Can Solve That Water Wash Booth Trouble

On pages 49 and 50 of July issue of INDUSTRIAL FINISHING we notice a problem signed by O.O.Co., outlining their difficulty in removing paint from their spray booth in spots where it is hard to reach with a stripper. You stated that you had referred their problem to a chemical engineer who specializes in this type of work.

Please be advised that we not only specialize in this type of work, but that we have exactly the stripper that your inquirer must have. We believe that it would be to our mutual interest to forward our name to this inquirer, along with our personal guarantee of satisfaction or money back.—BECK EQUIPMENT CO.

Name and address supplied.—ED.

Measures Thickness of Paint Film

On page 98 of June, 1949 issue of INDUSTRIAL FINISHING Magazine, we read a request from a reader signed P.B.Co., asking for information on a device for measuring the thickness of a paint film on sheet steel, without destroying the paint film or injuring it in any way.

We are sending you two bulletins on the Lea Lectromag just announced by us, (see August issue of I.F., page 98). We believe this will fill your correspondent's needs quickly, easily and economically.

Since you do not disclose the name or address of the concern interested in this proposition, perhaps you would be good enough to forward to them one of our leaflets.—The Lea Mfg. Co.

Furniture Polish Offered

In the August issue, on page 84, you have an inquiry for a polish from one of your readers. We would like to advise you that we make three grades of furniture polish, together with industrial clean-up polish. We believe this would fulfill the requirements of the person making the inquiry. Would you be kind enough to let us have the inquiry so that we can contact that person interested? — STAR CHEMICAL CO., INC.

Name and address furnished.—ED.

Print Test on New Finish

WE HAVE HAD SOME RECENT TROUBLE WITH PAPER PRESSING OR PRINTING IN THE FINISH OF OUR TV CABINETS. WE ARE REQUIRING THAT ALL FUTURE CABINETS MUST HAVE A FINISH WHICH WILL WITHSTAND A ONE LB. PER SQ. INCH WEIGHT ON A PIECE OF 8 OUNCE DUCK FOR 24 HOURS WITHOUT PRINTING. CAN YOU ADVISE IF, IN YOUR OPINION, THIS TEST IS A FAIR ONE AND IF IT IS BEING USED BY FURNITURE MANUFACTURERS.—J.W.G.

It's a fairly severe test but men experienced in furniture finishing tell us that it is not unreasonable and that many finishes will meet such a test satisfactorily.—ED.

Plans Wanted for Finishing Room

One of my customers, a manufacturer of individual shop fittings and store suites, is now planning the erection of a modern factory, and has asked me to assist with blueprints of up-to-the-minute paint shops and/or finishing sections.

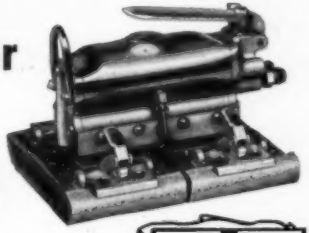
I have therefore taken the liberty of addressing a note to you, knowing that if it is possible to help in this direction, you will. It is planned to convey the fittings through the paint shop through the medium of a rail tracked trolley. It is more than possible that no two pieces will be alike so that finishes will, generally speaking, be dissimilar. It is not considered economical to install gravity containers or pressure tanks. The finishes will be air drying, both lacquer and enamel,

From REFINISHING TRUCK BODIES...

...to FINISHING FINE PIANOS

this Sundstrand Sander

will produce a better finish in less time



Yes, for production or maintenance work on wood, metal, plastic or composition, you'll do better work in less time with this portable pneumatic sander.

Its light weight, freedom from vibration and need for fewer abrasive changes, make it possible to average savings between 50% to 70% on production sanding.

Furniture and automobile body manufacturers are making savings like these daily with this Sundstrand sander. Investigate its possibilities today.

OPPOSED PAD RECIPROCATION Pads of this sander reciprocate in a straight line and opposite directions. Vibration is thereby reduced and operator's fatigue minimized.

FREE ADDITIONAL DATA!

If your work includes sanding of wood, metal or composition, on production or maintenance work, write for free complete bulletins. Ask for bulletin IF45.

SUNDSTRAND MACHINE TOOL CO.
PNEUMATIC MACHINE DIVISION
ROCKFORD, ILLINOIS, U.S.A.

though it is planned to install a forced drying section, using infra red lamps. Tentatively, an area of 60x30-ft., has been set aside for the finishing department.

With these particulars you might be able to provide a set of more or less stock blueprints; or perhaps a pencil sketch of modern American setups would be helpful. For whatever expense is incurred, let me know by return air mail and draft will be posted immediately.—James A. Greive, N.S.W. AUSTRALIA.

We have nothing to offer other than what has been published in past issues of INDUSTRIAL FINISHING. We suggest that your customer put his problem up to a U. S. consulting engineer who is conversant with modern finishing materials, methods and equipment. In a letter to you, we are including names and addresses of a few finishing consultants and engineers to whom your customer might write in reference to plans for a modern finishing room.—ED.

Electric Towel Wanted

In INDUSTRIAL FINISHING for July 1949, on page 7, we read about an electric towel for hand drying. We are interested in such a dryer, and we shall be pleased if you could give us the address of the makers, so that we probably can make an arrangement.—L.B.&S.N.V., Dordrecht, Holland.

Contact the Electronic Towel Corp., 57 William St., New York 5, N.Y.—ED.

Coating Small Hardware

We would appreciate receiving the following article as seen in the "Metals Review" of August. The article was entitled, "Coating Small Hardware with Lacquer" by Fred Rossberg and was published in June issue of INDUSTRIAL FINISHING.—The Palnut Co.

Tear sheets of the article are being sent to you.—ED.

Lead Pencil Finishing

In your June issue, on page 98, you have an inquiry regarding lead pencil finishing. We feel that we can help this manufacturer and would appreciate receiving the name and address of the man that we should contact on this subject.—THE NATIONAL CHEMICAL & PLASTICS CO.

Information supplied.—ED.

Striping Tool Wanted

Will you be good enough to advise us of the names and addresses of manufacturers of what is commonly known as a paint striper? This is a little gadget with a steel wheel on which a felt band is mounted, with a container attachment, so that in rotating the wheel the container feeds the paint, thus striping the paint on whatever surface is necessary.—D. MARKING DEVICES.

In a letter we are submitting the names and addresses of three firms that make and sell striping tools.—ED.

Bake Oven Wanted

I was making a call on a customer last week, along with Mr. G.J. of the B. Chemical Co. of Chicago, and the subject of bake ovens came up. Mr. G.J. promptly suggested that I write you.

The customer manufactures aluminum awnings, and is interested in installing a bake oven to increase the speed of his production, as well as the quality of his finish.

I would appreciate you writing him, giving him all of the information you can, as well as putting manufacturers of such equipment as he needs in touch with him.—H.H.F.

We have written your customer and given him the names and addresses of a dozen oven concerns who advertise in this magazine.—ED.

Can Supply Padding Lacquers

We would like to know the name of the concern who wants to know about padding lacquers, see page 48 of July 1949 issue of INDUSTRIAL FINISHING Magazine. We carry a full line of lacquers and can furnish the necessary information. The question was signed by I.V.&Co. —INDUSTRIAL FINISHING PRODUCTS, Brooklyn, N.Y.

Information supplied by letter.—ED.

Plastic Putty Wanted

Plastic Coating Co: We note, in the October 1948 issue of INDUSTRIAL FINISHING, that you produce a plastic putty which contains no oil, dries rapidly, sands easily, has excellent adhesion to metal and wood, and never dries out or becomes brittle. We would like to have more information about it, and if possible, a small sample of this putty.—G.Co.

Your letter of August 9, addressed to "Plastic Coating Co.," care of this magazine, has been forwarded to Plastic Coating Co., Los Angeles 1, Calif.

The item you referred to appeared in Sept. 1948 issue, in the "Letters from Readers", page 100. Inasmuch as you did not specify the page on which the item appeared, we were obliged to set members of our staff searching through every page and every line of Oct. 1948

Recent legislature in one state has created great interest everywhere in Protective Coatings which are lead-free. It is believed that such coatings if chewed by inquisitive youngsters should cause no more than a harmless passing effect.

For years Hilo has furnished Lead-Free Coatings in clear and in colors to manufacturers who wish to satisfy their markets with finishes which are considered harmless. These lead-free finishes are available in air dry and in baking type coatings. They are for wood and metal.

Your inquiry for Hilo Lead-Free Coatings in your colors would have our careful attention.

HILO

HILO VARNISH CORPORATION

42-60 Stewart Avenue, Brooklyn 6, N. Y.

2420 Washburne Ave., Chicago 8, Ill. • Park Sq. Bldg. Boston 16, Mass.

issue. When they did not find it in that issue, we took a chance and looked through both Sept. and Nov. issues. We trust that we have guessed correctly. Hereafter it will help us immensely if you will give the page number on which you see some item in the magazine—as well as the correct month of issue. We do not remember everything we publish and we do not have every item indexed for reference.—ED.

One-Hour Filler Wanted

In the July issue of INDUSTRIAL FINISHING, on page 96 and 98, there appeared an article by Joe Peterson on "Hondouras vs. African Mahogany." In this article he made reference to a "one-hour filler made by a large manufacturer of finishing materials." We would appreciate any information you can send us concerning this filler and where it can be purchased. —M. INDUSTRIES.

In a letter we are giving you the name and address of the manufacturer.—ED.

Knife Coating Machines

We are looking for a machine that is known as a "Knife Coater" to be used for the application of material on wallboard such as masonite. If you know of anyone in the manufacturing field that makes such a unit that could be used in this application, would you be good enough to advise us as to the manufacturer's name and address? Or, if you have any article on file regarding such a unit, would you please tell us what issue of your magazine this article appeared, so that we can refer to our file? —STAR MACHINERY CO.

Try John Waldron Corp., New Brunswick, N.J. In a letter we are also giving you the names and addresses of two engineers who are experts in knife coating technique and machines.—ED.

Can Supply Japanese Sea Grass

(Referring to the inquiry, "Japanese Sea Grass," as published in June INDUSTRIAL FINISHING, page 96.)

I have been one of the readers of INDUSTRIAL FINISHING from 1930, in Japan. During the war we were obliged to stop reading, but now I can read it again every month at C.I.E. Library, Tokyo and Yokohama.

The Japanese Sea Grass for wiping off filler was investigated by me under the American Engineer when I was finishing foreman of Victor Talking Machine Co. of Japan in 1930. As I had the sample of American Sea Grass on hand, I found the technical term "Zoxchera S.P." and its distribution in Japan. I gathered the grass from three districts and found out the same kind of American Sea Grass. It was "Ajimo" Japanese Sea Grass for wiping off filler.

I have collected the grass from Akita Perfecture, northern part of Honshu, Japan. I selected and sorted them out carefully and soaked them in water to free them from salt; then dried them properly.

In Japan we still do not have a good wood filler product and our method of filling is poor. We use the wooden putty knife instead of your grass filler operation. Only several of my friends and I are using a paste wood filler dissolved in solvent and grassing wood filler for finishing the higher grade of furniture.

I await an early reply from C. Wood Products Co. and am prepared to send the sample of Japanese Sea Grass and its report of further details. The name of Japanese Sea Grass is "Ajimo." The name of possible supplier is Nikko Sangyo Co., Ltd., No.1, 2-chome Harumi-cho, Chuo-ku, Tokyo.—MR. BUROKU ITSUKI, Superintendent of wood finishing plant, JAPAN.

Finishing Different Mahoganies

May we have about 12 reprints on the Questions and Answers about finishing Hondouras and African Mahogany, as published in May 1949 issue, pages 92, 94 and 96, together with the article on page 96 in July 1949 issue on the same topic?—NEW ENGLAND COATING WORKS, INC.

We have no reprints of these articles (reprints cost money) but are sending you tear sheets from a few mutilated copies which are still available.—ED.

Force Drying Equipment

We would appreciate your sending us, for the attention of Mr. John E. Curtin, information on forced drying—namely, companies from whom this equipment may be bought, comparative prices of equipment, materials, temperatures, etc.—F. FURN. MFG. CO.

Names and addresses sent by letter. —ED.

Flock Finishing

Your name has been referred to us by the National Painters Magazine. We are interested in obtaining information regarding flocking and also any specifications you may have pertaining to a flocking booth.—G.G.

We are sending you recent copies of the magazine which contain articles about flock finishing and the advertising of concerns that can supply flock, flock adhesive, flock spray guns and flock spray booths.—ED.

SPRUANCE QUALITY

SINCE 1906

Wood Lacquer for the Furniture Industry, in Gloss - Semi-Gloss - Flat

This company has always featured a highly specialized and complete line for the furniture industry. Among these specialties are:-

LACQUERS of high quality – which may be rubbed – having excellent build – will stand cold check and resist alcohol. Their uniformity and hard finish – have been proven in actual production for many years.

SEALERS–(two types)–one that sands readily in a half hour. It's tough – time saving – satisfactory. The other – is of highest quality – has maximum toughness – holds out the finish, but cannot be sanded for an hour. They are adapted to your preference–your production methods.

Rely on The GILBERT quality for high grade lasting

SPRUANCE COMPANY durable finish . . . beauty.

Our research and technical staffs are at your disposal.
Inquiries Invited.

The Gilbert Spruance Company

Richmond and Tioga Streets
Philadelphia 34, Pennsylvania

Our Masking Problem

We have a masking problem relative to the manufacture of radio speakers. It is desired to mask a certain area prior to painting with an aluminum paint, so that the material can be peeled off after painting and leave a surface to which a G. E. Thermoplastic No. 3142 may be applied, to cement the speaker cones in place.

Our customer tells us that to attempt cementing without a masking operation will prevent the thermoplastic from making a good bond with the aluminum paint. Incidentally, heat is applied to make the thermoplastic seal and, as a result of this operation, the seal will not hold if there is any aluminum paint present.

Perhaps there is an aluminum paint that can be used that will not prevent the thermoplastic bond when heat is applied. May we have your comments on this problem?—C.E.D.

It seems to me that this is strictly a masking job, rather than trying to find an aluminum paint that will not interfere with or prevent the thermoplastic bond when heat is applied. Keep paint off the surface to be cemented or bonded and you will have no problem. You can obtain pressure sensitive masking tape which is well adapted to masking surfaces or articles to be baked in an oven. The tape resists heat and may be peeled off afterward.—P.B.

I have some difficulty getting a clear picture of the process which you are using. Your letter fails to state what material the speaker cone is made of, what it is being cemented to, and what type of aluminum paint you are using. Also, how is it being applied and how much heat is necessary to cure the seal?

Since heat is used to make the seal, I assume that all components can withstand a certain amount of heat and it is my guess that the aluminum paint you are using has a lacquer base. Since lacquers soften when heated, this could prevent your obtaining a good seal. I would suggest that you try a good baking aluminum with phenolic or urea base. These are thermosetting materials which when cured, remain hard though subsequently heated.

However, if you prefer to continue masking, a strippable coating can be applied by brush, or masking tape can be used, or you might have a few close-fitting removable masks made of sheet metal.—GEO. CONRAD.

Spray Painting Is Better

Referring to our question and the two answers to same (July 1949 issue, pages 92, 94 and 96), there remains still the following question: Information on flow-coating shows that the flow-coating method has been used, so far, for such objects such as panels and chassis frames. We intend to paint automobile radiators by this method, and this seems to be more difficult.

Proceeding after your information we have made a few summary experi-

PYRO CELLO-FILM

• *The Superior Finish for All Wood Products*

PYRO CELLO-FILM resists heat so effectively that it is not harmed by coming in contact with hot dishes up to 307° F. When your product wears this amazing "coat of protection" it not only lasts longer, but stays beautiful indefinitely, for PYRO CELLO-FILM enhances the natural beauty of fine woods. It also protects against damage by bumps and scratches, water, fats, greases, saline solutions, alcohol and acids.

FREE OFFER! We will finish one of your wood products with PYRO CELLO-FILM—without cost. Then you can see for yourself how wonderfully it solves your finishing problems. Write for complete information today!

PYRO CELLO-FILM is an exclusive development of the

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ESTABLISHED 1883
1128 N. NORTH BRANCH ST. CHICAGO 22, ILLINOIS

SUPERIORITY UNIFORMITY PYRO-CELLO-FILM

MANUFACTURERS OF VARNISHES — PAINTS — STAINS — LACQUERS — SYNTHETIC ENAMELS — CELLO FILM — SOLDERING FLUX AND SPECIAL COATINGS.

ments which show that the draining of paint remaining between fins and tubes of the radiator cores is lengthy and necessitates a particular orientation of the radiator during draining. We indicate this detail so that you may better understand the importance of the question asked herewith:

To your knowledge, has flow-coating been applied to the painting of automobile radiators or similar devices having very close fitted fins?

We add that our sole purpose is to paint our radiators automatically and that, if we consider flow-coating, the reason is this method seems to be convenient, but if you know of another more advantageous procedure for the same purpose, you would greatly oblige us by telling us so.—S.A.U.C., Paris, France.

We don't believe that flow-coating is desirable for painting automobile radiators. Paint when dipped or flowed-on, tends to crawl away from the sharp edges. It also tends to fill up cracks that should be left open for radiation.

We suggest that manual spraying by the usual standard spray gun is your best arrangement. If you have an extremely large volume of work, it may be possible that this could be worked out automatically to advantage. In our opinion, you should have a hundred or more radiators an hour of the same size in order to pay for automatic equipment.

In order to intelligently tell you exactly how to do this job, we would have to know the volume of work, the size of the product and the space available to work in. It would also be important to know the type of paint used, and the drying time necessary.

This may be a disappointment to you, but it is better to reconsider at this time, rather than be disappointed later on.—MORRILL & RENSHAW, INC.

Finishing Drawer Pulls Made of Wood

Please advise where we can get information on finishing wood pulls.—N. CHAIR CO.

If you have large quantities of drawer pulls to finish you might consider the dip-whirling method of applying coatings. Machines for this purpose can be obtained from either of two concerns that advertise the machines in this magazine.

Another method would be tumbling, which has been described in articles in previous issues of INDUSTRIAL FINISHING.

Other methods include placing a number of pulls in a coarse wire mesh basket, dipping same into the finishing material and then withdrawing it and allowing the surplus to drain off. The coated parts could then be dumped onto wire mesh trays to dry.

Still another method would be to spray the pulls while perhaps as many as 40 to 100 of them are temporarily stuck to metal points or masking tape on a wooden tray or panel. This method is used by several concerns.—EDITOR.

Finishing Systems, Inc., is Organized By Al. W. Smart

Alfred W. Smart, who has represented Peters-Dalton, Inc., manufacturer of Hydro-Whirl paint-finishing systems, and Allied Steel & Conveyors, Inc., both of Detroit, Mich., announces the formation of a new corporation, Finishing Systems, Inc.

The new corporation will continue to represent both companies exclusively throughout the East and will also add such items as spray-finishing and quality control equipment, paint-circulating systems and other associated items to complete a full line of equipment for the organic finishing room.

The new corporation will soon start construction of a building in Mineola, N.Y., which will include a testing laboratory where it will be possible to determine the advantages of a modern finishing system prior to the planning of same.

We Shun the
GENERAL

to Serve the
PRIVATE

INDIVIDUAL FINISHING NEEDS OF INDUSTRY
with

LACQUERS

Clear Metal Lacquers, Colored Lacquers for Metal, Plastic, Wood; Clear S. G. for metal

ENAMELS

High Bake S. G. White and Colors. Air Dry S. G. for metal — colors. Texture Enamels — Black and Colors

DOPES

FLIGHT-TESTED AIRCRAFT FINISHES

THINNERS

THE EXACT FINISH IN THE PRECISE COLOR FOR YOUR NEEDS

We invite you to submit your difficult finishing problem to us. There is no cost or obligation to you for the advice of our expert technicians. We will welcome the opportunity to serve you.

Randolph
PRODUCTS COMPANY
Carlstadt, New Jersey

DOPES · LACQUERS · ENAMELS

Low-Cost Lacquer Enamels Announced by Atlas

Introduction of a new line of low-cost gloss lacquer enamels for manufacturers of wooden toys, chain store household items and novelties is announced by the Industrial Finishes Department of Atlas Powder Co., Stamford, Conn., and North Chicago, Ill. The new product, known as Zapon 401-191, may also be used on pretreated or primed metal.

Formulated for either spray or dip application, this grade possesses unusually good adhesion to wood. It air dries with normal lacquer speed, producing a tough, durable finish and is available in all colors.

Strippable Clear Coating for Electrical Terminals

One of the most common problems in the electronic industry is the difficulty in protecting armatures and silver plated terminals from being covered by multiple coats of insulating varnish.

The practice is to apply several coats of varnish to the entire unit, including the precision ground laminated metal surface of the armatures as well as the terminal endings, baking each coat of varnish after every application to assure adequate protection of the parts. The principal disadvantage of this method is the difficulty in removing the thick and hard baked varnish coatings that cover the terminals and armatures.

The Maas & Waldstein Co., manufacturers of industrial finishes, Boston, Chicago, Los Angeles, and Newark, N.J., has developed a special protective coating to help solve this common problem. This material, known as Copeel Clear Strippable Plastic Coating No. 351, is applied to the armatures and terminal endings, prior to varnishing, and is formulated to withstand multiple applications of varnish as well as high baking temperatures.

After the units are completely varnished, a sharp instrument is used to pierce the laminated metal ends of the armatures and the terminal endings. Wherever the Copeel has been applied, the thick, hard varnish coats are quickly and easily removed by stripping the Copeel Plastic Coating.

Smoke Deflector Polices Plant Areas for Fire

By applying a selector valving system similar to that used for many years in the Kidde marine smoke detector, engineers of Walter Kidde & Co., 40 E. 34th St., New York 16, N.Y., has developed a Multi-Space Smoke Detector for general and industrial use. The new detector will protect four spaces simultaneously.

All accumulators in all spaces are under constant suction, drawing continuous streams of sampling air to the control cabinet. The selector valve mechanism directs the air from each space in succession through the photoelectric analyzer tube, where each space is sampled for 10 seconds. Con-

NEW PERIOD
Production Finishes
BAKING ENAMELS
LACQUERS SHELLAC
ENAMELS FILLERS
SEALERS SUPPLIES
PRIMERS STAINS
SYNTHETICS VARNISHES
New Period Quality Finishes are Delivering Trouble Free Performance to Hundreds of Manufacturers
MAY WE GIVE YOU T. F. PERFORMANCE
FILLERS ad STAINS—New Period has long been famous for its quality Fillers and Stains and unequaled color-matching service.
LACQUERS—CLEAR & SEMI-GLOSS. Uniform and dependable—Suitable for coating almost any surface—Provides more coverage and unusual milage. Cuts costs and maintains quality.
SEALERS—Provides excellent body, dries fast and sands easily.
LACQUER ENAMELS—FLAT & GLOSS. Available in a wide variety of matched colors and shades. Widely used by leading manufacturers in many different industries.
SYNTHETIC ENAMELS—A durable and trouble-free finish for fast production. Built to meet the most exacting requirements.
Remember New Period Finishes for Quality and Service
MANUFACTURERS OF FINE WOOD AND METAL PRODUCTION FINISHES.
NEW PERIOD Production Finishes
ESTABLISHED 1917
NEW YORK WOODFINISHERS' Supply Co.
109 IMLAY STREET BROOKLYN, N. Y.

stant suction eliminates time lag in analyzing successive samples.

If 3% or more smoke is present in any air sample, the valving mechanism stops and the fire alarm rings. The numbered zone wheel, visible through a window in the control cabinet door, indicates the space from which the alarm originates. The remote indicator tells the exact location where smoke is present. Concentrations of smoke lower than 3% set off a trouble alarm, which changes into fire alarm as smoke density increases.

The Multi-Space Smoke Detector is intended for early fire detection in unfrequented plant areas or warehouses where fire may smoulder and produce smoke long before flames actually break out and produce enough heat to actuate other types of protective devices.

Portable Electric Sander

Smooth operation plus straight-line sanding, rubbing and polishing are features of the new portable electric Model DF, Detroit Easy Finisher. It is claimed that operation is as smooth as the finest electric drill.

Straight-line sanding duplicates the natural back-and-forth motion of hand work, and permits working up to moldings or right angles without marring or scratching the surface.

No vibration occurs while this machine is operating as a sander or rubbing machine.

A rear handle provides comfortable one hand operation. A front guide handle which can be instantly attached is furnished with each machine for use on overhead work and other jobs where two-hand operation is more comfortable.

A new and simple easy-to-use sandpaper holder will take several sheets of sandpaper at one loading.

For additional information, write The Detroit Surfacing Machine Co., 7433 W. Davison, Detroit 4, Mich.

New Electric Lab Mixer

The Brookfield Counter-Rotating Mixer, manufactured by Brookfield Engineering Laboratories, Inc., 004 Porter St., Stoughton, Mass., makes available in the laboratory, mixing speeds and results hitherto only available in large production equipment.

By using two motors, this mixer produces an annular rather than circular flow. All materials, including the heavier particles, are rapidly drawn into the propellers where they must pass through the shearing zone. There is practically no cavitation, no centrifugal effect, and the liquid level remains essentially constant, allowing the use of nearly filled containers. Mixers are available for either 110 or 220 volts, A.C. or D.C., and with shaft lengths and propeller designs as required.

Rust Preventative Announced

EHW Formula with an outstanding record for protection of metals is being manufactured for Temperature Equipment Corp., 4505 Euclid Ave., Cleveland, Ohio. The formula, developed by E. H. Whitelock, prominent Cleveland metal finishing consultant, provides a clear protective coating for

4

TYPES OF SYNTHETIC FLAT FINISHES TO CONFORM TO YOUR NEEDS . . . POCKETBOOK

DRYING SCHEDULE

- **FULL RANGE OF SHEENS** . . . from dead flat to gloss
- **NO DULLING OR CLOUDY FLATTENING AGENTS** added
- **A BEAUTIFUL RUBBED EFFECT** . . . will rub clean and clear
- **WILL EITHER AIR OR FORCE DRY**
- **OUR SUPERIOR PROCESS IN CHEMICALLY TREATING RESINS DEVELOPS A FINISH SO SMOOTH . . . YOU CAN FEEL THE DIFFERENCE**

1 **PERLAC SATIN FINISH** . . . out of the dust in 5 to 7 minutes . . . one coat looks and rubs like two coats of lacquer . . . liquor proof . . . water proof . . . won't haze or sweat back.

2 **PERFEX SATIN FINISH** . . . quick set . . . quick dry . . . water proof . . . liquor proof . . . full smooth body . . . won't haze or sweat back.

3 **PERFECTION SYNTHETIC FLAT FINISH** . . . water proof . . . liquor proof . . . beautiful rubbed effect.

4 **PERFECTION QUICK DRY FLAT VARNISH** . . . beautiful . . . rubbed effect . . . or rubs well . . . smooth.

PERFECTION PAINT & COLOR COMPANY

715 E. Maryland St., Indianapolis 2, Indiana

Perfection SYNTHETIC FLAT FINISHES

WATER-PROOF LIQUOR-PROOF

all metals and plated surfaces against rust, corrosion, pitting and tarnish.

The formula is clear and actually adds sheen to any metal, plated or baked finish. Unlike other preparations made for its purpose, EHW Formula is not a plastic and will not discolor or turn brown. It can be applied by brushing, spraying or dipping.

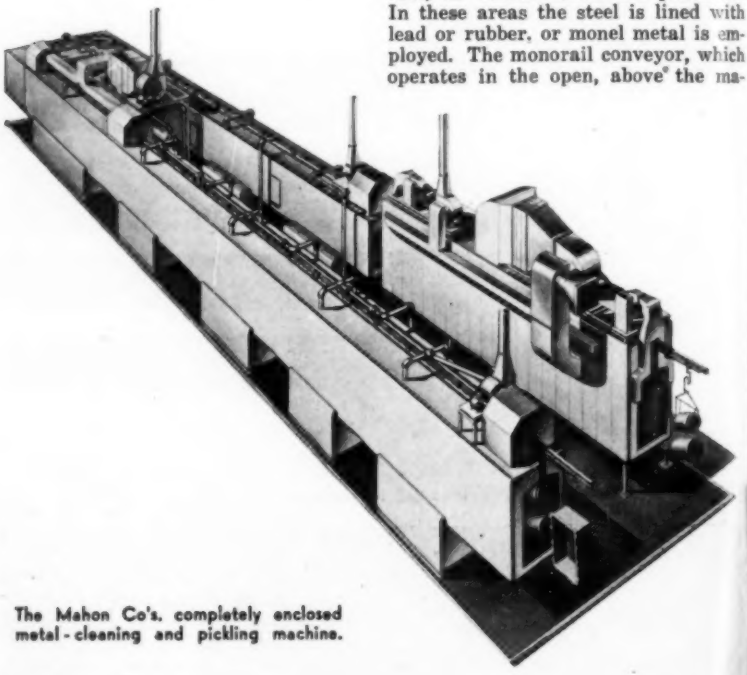
Washing and Pickling Machine is Enclosed

The R. C. Mahon Co., Detroit 11, Mich., announces a competely enclosed washing and pickling machine which reduces pickling time to less than one-third and permits reductions in volume of processing solutions.

The new Mahon Hydro-Hermetic Seal (Patents applied for) makes possible this noteworthy advance in the development of practical and economical equipment for the preparation of metal surfaces to receive porcelain enamel.

The process is continuous through all operations: Emulsion cleaning, clear water rinse, alkali cleaning, 3-stage water rinse, sulphuric acid bath, acid water rinse, nickel sulphate bath, sodium cyanide neutralizer, borax neutralizer rinse, and hot air dry-off.

Tanks and tunnel housing are of mild steel throughout except in areas where corrosive materials are in contact, or where fumes are prevalent. In these areas the steel is lined with lead or rubber, or monel metal is employed. The monorail conveyor, which operates in the open, above the ma-



The Mahon Co's. completely enclosed metal-cleaning and pickling machine.

FINISH?

THE GREATEST ADVANCE
IN THE HISTORY
OF FINISHING AND PROCESSING
IS THE

NEW P-B FLEXIBLE SYSTEM . . .

A Revolutionary Conveyor Development
that Reduces Cost, Space
and Capital Investment to a New Low
and Increases Returns
to a New High.

Previews by requested appointment.

ENGINEERS • MACHINISTS • STEEL FABRICATORS • ERECTORS

PALMER-BEE Company

DETROIT 12, MICHIGAN

chine, is fitted with monel metal adapters which are the load carrying medium that passes through the Hydro-Hermetic Seal; no spray or fumes can escape or work up the adapters to damage the conveyor.

The Hydro-Hermetic Seal, which seals the top of this machine throughout its entire length, greatly increases processing efficiency in each stage. It also prevents the loss of active chemical fumes, reduces ventilating requirements to a minimum, and eliminates the necessity for a tremendous intake of air through an open conveyor slot.

These Mahon pickling machines can be designed to meet any requirements of product processing, production rate, or plant layout.

Dip Process Brightens and Protects Aluminum

Aluminum and its alloys, including those alloys containing copper as well as assemblies of alloys, can now be mirror-brightened and protected in a few minutes by means of simple immersions in aqueous solutions. These treatments either in the as-brightened or as-protected conditions are excellent bases for paints and lacquers.

Often as-fabricated parts can be put through this finishing sequence without prior polishing or buffing.

The operation consists of a series of acid-proof and common steel tanks, several of which are used hot. The entire time of the cycle is as low as five minutes. The resultant finish is clear, resembling reflective anodizing.

Chemical control is simple and a chemist is not required.

Much work, depending on the size and shape of the parts, can be handled in bulk, as in baskets.

Part of this process will produce passivated mirror-type finishes alone, which, if followed by anodizing and coloring, produces brilliant colored effects simulating most any of the birghtly polished metals (gold, silver, copper, brass, chromium, etc.) or other colors. The corrosion resistance is greater than plated metals, and no after lacquer is required.

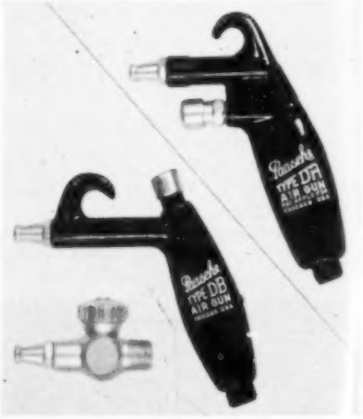
For further information on this, write Technical Process Division of Colonial Alloys Co., Philadelphia 19, Penna.

Fast Sturdy Air Guns Presented by Paasche

Three newly designed air guns (for blowing jets of air) are now available. Principal innovation in design has been the styling of the gun handle to fit more easily and quickly into the hand of the operator.

Another feature is the suspension hook which is designed so that the gun may be hung to a nail or a suitable fixture after each blow-off operation and retrieved in the least possible time for the next blow-off.

Interchangeable nozzles have been



Two hand air guns and a nozzle for blowing a continuous stream of compressed air.

ENAMELS
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LACQUERS
SEALERS
STAINS • GLAZES
SHELLAC

NOVELTY FINISHES

•

IN STEP WITH THE TIMES

Industrial Finishes

that make the most of available raw materials to give you greatest durability, together with attractive appearance and economy.

• **FOR APPLICATION BY ALL METHODS**

JAMES B. DAY & CO., CHICAGO

developed for these guns. The most widely used type delivers a highly concentrated conical blast. With it the operator is able to get a localized and extremely powerful pin-pointing of the air stream which is so desirable in many operations in both maintenance and repair work.

Other nozzles include one that delivers a 45° up-blast; a flat air spray; a fan blast; and an adjustable air stream nozzle. Three-inch and six-inch extensions are also available for use in almost inaccessible places.

Information concerning guns and nozzles may be obtained by writing Paasche Airbrush Co., Dept. 9, 1909 Diversey Parkway, Chicago 14, Ill.

Paint Can Extension

"Samson Canstretcher" is the name given a metal extender which fits the top of an open gallon paint can, adding an extra one third capacity to the can. This extension allows thinner to be added without pouring part of the paint into another container; it allows vigorous stirring of the paint without spilling.

The extender is fitted into the top of the can and press-fitted into place to provide a single leak-proof container. A separate lid placed over the extender makes it possible to agitate the paint mechanically.

For information, write Roberts Paint Corp., 515 Bryant Ave., New York 59, N.Y.

This extension fits into top of paint can.

Nameplate Marking Machine

A compact and safe-operating new bench style pneumatic marking machine has been designed and developed by Jas. H. Matthews & Co., 3931 Forbes St., Pittsburgh 13, Pa., to replace slow, tedious hand stamping or costly press marking applications. It is recommended for production marking of nameplates where there are frequent changes in character alignment and nameplate size. The result is neat, attractive and perfectly aligned characters or symbols in name-plate panels.

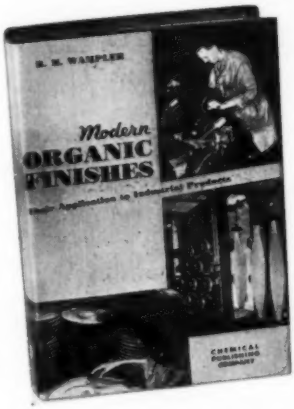
The standard Model 222 machine will mark a maximum size nameplate 5½-in. left to right by 4-in. top to bottom when the marking area is located in the center of the plate.

New Adhesive Makes Pre-Cementing Possible

H-511 Ubabond, a synthetic rubber cement developed by the Union Bay State Chemical Co., 50 Harvard St., Cambridge, Mass., now makes possible the pre-cementing of many materials. The pre-cemented surfaces can be joined together at a later time, on an assembly line or after shipping to point of use, without loss of adhesion efficiency.

Upon application, the adhesive dries to a non-tacky condition after a period of 15 to 30 minutes at room tempera-

A "MUST" For All Finishers!



ORGANIC MODERN FINISHES

"Their application to Industrial Products"

This book contains 452 pages of the latest information on finishing. It describes modern finishing materials and equipment for their application, drying, conveying, etc., so that the reader may have an overall picture of modern industrial applications. Throughout, the main emphasis is on proper selection and use of materials to get the best possible finish at minimum cost.

It's Complete — Note the Contents

MATERIALS: Oleoresinous and Alkyd Varnishes and Enamels; Cellulose Lacquers; Spirit Varnishes, High Integrity and Specialty Finishes; Stains, Wood and Metal Fillers, and Miscellaneous Finishing Materials.

MODERN APPLICATION METHODS:

Spray Painting; Dipping and Flocoating; Roller and Knife Coating; Tumble and Centrifugal Finishing; Special Processes.

DRYING METHODS:

The Drying Process—Air Drying; Force Drying; Baking by Convection and Radiant Heat; High-Frequency Baking.

PRODUCT HANDLING IN THE FINISHING DEPARTMENT:

Conveying Methods.

FINISHING PROCESSES:

Wooden Furniture and Cabinet Finishing; Prefinishing Wood, Plywood and Hardboard Structural Materials; Special Industrial Wood Finishing Problems; Finishing Paper, Cardboard and Fabrics, Finishing Plastics and Resin-Impregnated Wood; Cleaning and Surface-Treating Metals; Finishing Automotive and Railway Equipment; Finishing Sheet Steel Products; Finishing Iron Castings; Finishing Aircraft; Rubbing and Polishing Organic Finishes.

SOME GENERAL CONSIDERATIONS:

Good Practice in the Finishing Department; Testing and Evaluating Finishes.

The price is $8.50 and to eliminate bookkeeping we ask that cash accompany order. Sold on a money-back guarantee. Money refunded promptly and without any questions if you are not satisfied.

INDUSTRIAL FINISHING Magazine

1142 North Meridian Street **Indianapolis 4, Ind.**

ture. Handling the pre-coated materials in assembly or shipping is possible. When the pre-cemented surfaces are to be joined together, reactivation is easily and quickly accomplished by heating under infra red, steam or dry heat, or by brushing or spraying a solvent on the coated surfaces. Samples for testing may be obtained by writing the company.

Detects Gas Leaks

The General Electric Co., Schenectady 5, N.Y., has perfected an electronic instrument so sensitive that it can detect leaks small enough to release one ounce of gas in a century.

This portable instrument consists of a leak detector to check the welded seams in a fuel tank. It is connected to the electronic indicating unit, the dials of which show the leak, if any. The operator may also wear earphones by which he receives an auditory signal of a leak without watching the dials.

Portable Air Compressors

Two dual-pressure portable air compressors are announced by American Brake Shoe Co.'s Kellogg Division, 90 Humboldt St., Rochester 9, N.Y. Both piston type compressors offer two working pressures and two air deliveries by merely shifting a lever. They are suitable for general portable use.

Model B-140-DS is powered with a ½-h.p. motor. Model G-140-DS is powered with a ¾-hp. gasoline engine. Both models operate at 150-lbs. pressure delivering 2.4-c.f.m. of free air. By shifting a lever, the compressor is a continuous running unit at 50-lbs. pressure delivering 3.2-c.f.m. of free air for paint spraying, and many other uses requiring low pressure and increased volume.

Chem-Scale Pearl Essence

Chem-Scale, one of the most brilliant pearlescent pigments available, consists of pure white, minute, crystaline particles. Chem-Scale is supplied in concentrated form, making it practical for use with coating materials and plastics to produce lustrous effects on an economical commercial basis.

Chem-Scale is used extensively in various types of coating materials to produce lustrous finishes such as, pearl, porcelain, pottery, cloisonne, gun-metal, statuary bronze, hammer tone, wood graining and other novel and decorative finishes. It is generally incorporated in clear or tinted lacquers and applied by spraying, spatter spraying, dipping, brushing, gasket coating or roller coating. It has been found particularly effective in finishes for artificial pearls, costume jewelry, buttons, buckles, pencils, fishing lures, artificial flowers, vases, cosmetic accessories, clocks, picture frames, caskets, office fixtures, home appliances, and automotive instrument panels, heaters, hardware and fittings.

Chem-Scale is supplied in essence form or wet with various solvents or diluents. In essence form 12½% of the crystals, dry weight, are incorporated into 12½% of cellulose nitrate (Chem-Scale "PX") or cellulose acetate (Chem-Scale "CA") and 75% butyl acetate for the former, and methyl "cellosolve" acetate for the latter. In diluent form, 25% Chem-Scale, dry-weight, is incorporated into any desired coating material solvent or diluent as well as water or ethyl alcohol. Chem-Scale pearl essence is a product of Shuman Chemical Products Inc., 58 John Hay Ave., Kearny, New Jersey.

The manufacturer presents a word of caution to the effect that this material should be stored in glass, glass-lined, vitreous enamel or stoneware containers—never in metal.

Industry's 3 Newest

COLD STRIPPERS

Fast! Economical! Safe! New!

"UNISOL"—for removing all baked enamels! Used cold—Non-inflammable—Non toxic—Strips baked enamels in seconds—Used for all type metals—Requires no rinse—Non-injurious to hands or clothing.

"UNISOL No. 2"—A new cold stripper for japans and vinyls—Non-inflammable—Strips tough japans and vinyls in matter of minutes—Used for all type metals.

"STRIPPER 202"—Something new for removing "stop-off" lacquers in seconds—Will not tarnish highly polished metal surfaces—Non-inflammable—Used cold—Non toxic.

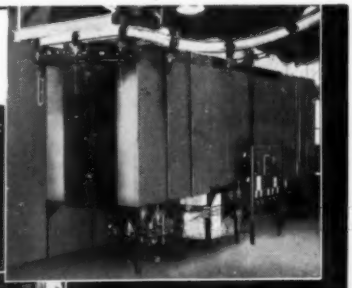
Samples and further information supplied on request.

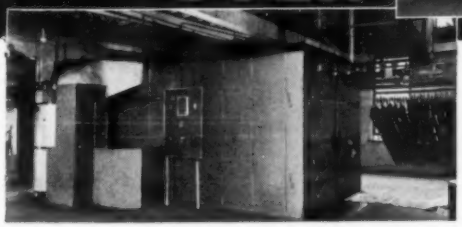
CHEMCO PRODUCTS CO., Inc.

7740 WEST 47TH STREET LYONS, ILLINOIS

for efficient straight-line production—get a

LANLY CONVEYORIZED OVEN





Lanly experience embraces the designing of many such ovens for a large variety of purposes.

A letter or phone call will make our counsel available without obligation. Write for literature.

THE LANLY CO. 760 Prospect Ave. CLEVELAND, OHIO

For "Shot" Blasting

Recently introduced to industry is the new "Cutwire Shot" for peening and cleaning metal surfaces. It is made from high quality SAE 1065 wire for high tensile strength, hardness (46-52 Rockwell), and maximum fatigue resistance, and is now available in .014 to .072-in. diameters.

Life of Cutwire Shot is said to be 1500 cycles, as opposed to the 2½ to 10-cycle life of the conventional chilled iron shot. Cutwire Shot quickly deforms into a full round shape of uniform size, which is maintained for 98% of its long period of use. The manufacturer is Precision Shot Co., 6432 Cass Ave., Detroit 2, Mich.

Rubber-Covered Clips

Rubber insulated clips, clamps, and fasteners have been standardized by Automotive Rubber Co., Inc., 8601 Epworth Blvd., Detroit 4, Mich. These rubber insulated products are designed to prevent slipping, chaffing, cutting and rattling in the securing of wire, loom, tube, pipe, cable, rod, etc.

They are available in a variety of shapes and each in a wide range of sizes. Exposed metal ends can be parkerized, zinc plated, cadmium plated, lacquered or enameled to suit the customers needs. Special shapes and sizes are available to specification.

New Model Pressure Washer for Cleaning

An improved model of the Hydro-Air pressure washer, with a broadened range of application to industrial and automotive cleaning jobs, is announced by D. & M. Products, Inc., 439 S. Western Ave., Los Angeles 5, California.

Fast, efficient cleaning action with the washer has been obtained by a redesign of the air orifice and venturi tubes, permitting the utilization of an increased volume of air and water.

Hydro-Air pressure washer for fast cleaning.

The Hydro-Air washer uses a mixture of water and compressed air which can be precisely controlled. Through the use of varying adjustments, the washer can effectively remove heavy dirt and grease or quickly and thoroughly rinse cleaning solvent from sheets and parts without backsplash or harm to finish.

Virtually any industry in which there exists a problem of cleaning raw materials, equipment or parts will find time-and-labor saving applications for the new Hydro-Air pressure washer.

Undercoater for Metals

Perma Color Undercoater No. 110-1, according to the manufacturer, is rust proof, moisture proof and resistant to acids, alkalies, oil and abrasion. The coating is extremely flexible and has excellent adhesion, so that sheet metal coated with it can be drawn or formed without harm to the coating.

The coating air dries in five to ten minutes before baking. It can be baked at 300°F. for one hour or at different heats and times up to 450°F. for ten minutes. It can be sprayed, dipped, brushed or roller coated.

This undercoater can be considered as a one-coat finish, as it has excellent

Skin Irritations

EFFICIENCY IS SKIN DEEP

You can't expect top production efficiency when *skin irritations* plague your plant workers—causing *absenteeism* and *slow-downs*. TARBONIS has a long record in hundreds of plants for overcoming and guarding against the recurrence of *skin irritations*.

COMMON SKIN IRRITANTS

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- Sodium Bichromates • Lime
- Metal Dust • Detergents
- Urea and Phenol • Naphtha
- Plastic Compounds

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BOOKS On Finishing Available

"MODERN ORGANIC FINISHES—Their Application to Industrial Products" (452 pages) New	$8.50
"CHEMICAL FORMULARY" (Vol. VIII)	7.00
"FINISHING METAL PRODUCTS"—2nd ed. (352 pages)	4.00
"PRACTICAL FURNITURE FINISHING" (112 pages)	1.25
"FURNITURE FINISHING" (543 pages)	4.00
"SPRAY PAINTING"—Industrial and Commercial (169 pages)	2.00
"THE MIXING OF COLORS AND PAINTS" (292 Pages)	2.50
"WOOD FINISHING" (361 pages)	2.50
"NATIONAL PAINT DICTIONARY" (704 pages)	7.50
"MODERN POLISHES AND SPECIALTIES" (313 Pages)	7.50
"PRACTICAL COLOR SIMPLIFIED" (128 Pages)	5.00
"GRAINING"—Ancient and Modern (224 Pages)	4.00
"THE SILK SCREEN PRINTING PROCESS" (225 pages)	4.00
"INDUSTRIAL APPLICATIONS OF INFRA-RED" (200 pages)	3.50

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Graining Plate Division

104 E. Mason St., Milwaukee 2, Wis.

hiding qualities and can be buffed to a high luster. Successive coats may be applied before baking, with good adhesion between coats. It may be overcoated with enamels, lacquers or varnishes, either air dried or baked, with good anchorage to the undercoat.

Perma Color Baked Undercoat No. 110-1 is non-toxic. It is a product of Perma Color Products, Inc., 62 S. 11th St., Brooklyn 11, N.Y.

Random Comment on the Industrial Scene

(Continued from page 7)

experts as the ideal range for eye-ease and perfection of image reproduction. It is said to provide television pictures equal to good black and white photographs.

* * *

Homogenized Paint may soon be available. Experiments are being conducted with high frequency sound waves to mix paint so that stirring by the user will be eliminated.

At present a 2000-watt sound generator with a speed of 150,000-rpm is being used in the experiments. Air pressure controls the frequency and intensity of sound waves. These waves are so powerful that a piece of cotton placed over the throat of generator will ignite in a few seconds. The generator produces enough power to light 50 ordinary 40-watt incandescent lamps.

If these experiments are successful, lower production costs and better quality will result, say the researchers.

* * *

Fire Resistant Paints. First is Coating-X made especially for indoor use. A coating of this paint when exposed to flames will produce an inch-thick

insulating substance. It is said to adhere to most surfaces. It is moisture resistant and does not flake. At present it is available only for experimental purposes.

Next, for outdoor use, a flexible coating has been perfected which will withstand temperatures up to 1800°F. for 28 minutes without burning. This coating is designed for use on gas tanks in planes to provide additional time for passengers and crew to leave a burning plane. However it should find many industrial uses in the never ending fight against fire.

* * *

Storage Units. The Museum of Modern Art and Design Project, Inc., made six awards in the competition in low-cost furniture. Four of the six designs have been accepted by manufacturers and will be in production soon. Only one of the four prize winning designs was for a storage unit. The others were for seating pieces.

It is true that many modern homes provide ample storage space. It is reported that the house of tomorrow will have built-in-the-wall radio and television to provide more floor space in the rooms, but this may be ten or twenty years hence.

In the meantime, many people live in old houses which provide little or no storage space. Others live in not-so-old houses that still have insufficient storage space. Most of these people are, or could be in the market for storage units.

Designers and manufacturers would do well to give more attention to some storage units that combine beauty of design, finish and, above all, utility. How about including some space in the backs and under the seats of large chairs or seating pieces?

Mac's FASHION BLEACHING LACQUER

Is "water white" in color . . . can be applied by brush or spray. Highly recommended for extra light or blonde finishes. Can be coated over with MAC'S Filler or Glazing Stain.

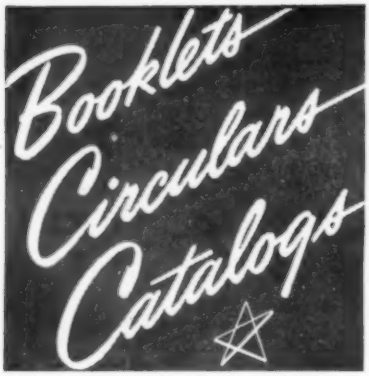
Produces a lighter finish when applied directly over bleached, sanded and dusted wood. Prevents the oil in filler or stain from causing a darkened color.

Write for samples and descriptive folder.

The Lawrence-McFadden Co.

Headquarters for Fine Finishes Since 1875

7430 STATE ROAD **PHILADELPHIA 36, PA.**



Safety Catalogue

E. D. Bullard Co., 275 Eighth St., San Francisco 3, Calif., announces a new issue of "Everything In Safety" containing personal protective equipment and industrial safety devices. A free copy will be sent if request is made on company letterhead.

Bulletin on Ovens

A bulletin showing various types of industrial ovens with operating temperatures up to 1000° F., is announced by Michigan Oven Co., 4544 Grand River Ave., Detroit 8, Mich. Both batch type and conveyorized ovens are included. A copy of the bulletin will be sent free on request.

Chart for Checking All Fire Danger Spots in Factory

An interesting chart which shows, in several pages, how to check possible fire danger areas in any industrial plant, has been prepared by the Protecto-Seal Co., 1920 S. Western Ave., Chicago 8, Ill. Information is provided on how to observe safe practices in and near these possible fire hazards. Copies of the chart are free.

Instrument Catalogue

Here is a complete guide for the selection of modern, accurate instruments for plant and laboratory. Complete cross indexing and new, systematic layout makes it easy to find the instruments best suited to your needs.

Instruments illustrated and described in its 40 pages include all types of glass thermometers, psychrometers, thermoregulators, mercury-plunger relays, hydrometers, with and without thermometers. Specific gravity or Baume' scales, A.P.I. ranges, Brix, Twadell and many other specific use scales. The guide will be sent free on request to H-B Instrument Co., 2633 Trenton Ave., Philadelphia 25, Pa.

Fire Prevention Guide

A new informative 12-page booklet is available without charge, outlining procedures to be followed in helping industry reduce the hazard of and loss by fire.

The subject of flammable liquids is covered in sections entitled, "Fire Facts", "Production Line", "Science Stops Fires", and "Inspection Service".

The back of the booklet has a pocket containing seven departmental charts which enable anyone to make an easy and accurate check-up on flammable hazards.

Write on your letterhead to The Protectoseal Co., 1920 S. Western Ave., Chicago 8, Ill., for your copy.

Distant Reading Thermometer

Bulletin No. 2451-C describes in detail all sizes and types of Alnor distant reading thermometers, enumerating the services for which each type is best suited. It includes installation and operation instructions, and lists prices for every instrument. Accurate temperature readings are possible up to 1000-ft. distant.

Copies of the bulletin may be obtained by writing Illinois Testing Laboratories, Inc., 420 N. LaSalle St., Chicago 10, Ill.

Electric Viscometer Catalogue

An 8-page catalogue describing various models of Syncro-lectric Viscometers is now available. These portable, precision instruments are built to accurately measure the viscosity of all materials used in organic finishing. Readings are taken directly from a dial, the viscosity being registered in centipoises.

Copies of the catalogue may be obtained from Brookfield Engineering Laboratories, Inc., 002 Porter St., Stoughton, Mass.

Adhesives & Their Applications

The complete story of adhesive products and the Paisley facilities are presented in a 6-page, 2-color illustrated pamphlet which is currently being offered by Paisley Products, Inc., 1770 Canalport Ave., Chicago 16, Ill. The manufacturer states that this pamphlet has been prepared especially for new users of adhesive materials. It acquaints them with the large variety of adhesive raw materials and chemicals now being employed to meet the production requirements of all industries.

Safety Switch Bulletin

A new 4-page bulletin, TEC 302-A giving factual information about Type A, Style A, Heavy-duty Industrial Safety Switches, tested and approved by Underwriters Laboratories, Inc., is now available from The Trumbull Electric Mfg. Co., Plainville, Conn.

The bulletin contains information about the types of applications these switches have been designed for, extent of the line, horsepower ratings, and gives specific information on how to order and how to specify. Free copies may be had by writing the company.

Faceshields Bulletin

A 4-page bulletin has been published describing M.S.A. Faceshields for protective handling of acids, and other chemicals, pouring hot metal, sanding, grinding, degreasing and electroplating operations, wherever face and eyes are endangered by light or flying particles.

These Faceshields are available in three standard headgear types, with full spark-guard, semi-spark-guard, and without spark-guard. Clear vinyl plastic or green cellulose acetate visors are available.

Refer to M.S.A. Bulletin No. CN-3 in writing to Mine Safety Appliances Co., Braddock, Thomas & Meade Sts., Pittsburgh 8, Pa.

Improved Industrial Vision

A new brochure describing sight conservation programs in industry has just been published by American Optical Co., Southbridge, Mass. Titled "Improved Industrial Vision, A Bonus for Management, A Benefit for Employees", the publication features case histories and charts demonstrating the cost saving values of an industrial safety and visual efficiency program.

The brochure is available upon request to American Optical Company's Industrial Safety and Visual Efficiency Bureau, William T. Cameron, director.

Laboratory Thermometer and Hydrometer Catalog Offered

A new 16-page catalog, "TAG Laboratory Thermometers and Hydometers," has been published by the C. J. Tagliabue Corp. It illustrates and describes the complete line of TAG thermometers and hydrometers for use in chemical and industrial laboratories. Also contained in the catalog are useful Fahrenheit-Centigrade conversion tables. This literature is available without charge; write for Catalog 1100E, to C. J. Tagliabue Corp., 614 Frelinghuysen Ave., Newark 5, N.J.

COMPARE
DURATITE
WITH ANY OTHER FILLER

See why it's better!

See how much faster and easier Duratite fills holes, cracks, dents, gouges *in just one application.* Dries with only 1% shrinkage.

Duratite's *fine textured fill stays in!* Can be cut, sawed, sanded to a fine, smooth surface...waterproof, weatherproof, takes a high finish, and all commonly used stains.

You'll prefer Duratite! Complete line of 7 wood colors in 5 convenient size packages.

SEND FOR FREE SAMPLE!

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FOR LARGE CAVITIES FOR SMALL CAVITIES

Detrex Appoints Williard Regional Sales Manager

Announcement is made of D. E. Williard's appointment as manager of industrial cleaning equipment and chemical sales for the Central Region of the United States for Detrex Corp., Detroit 32, Mich.

Mr. Williard is well qualified for his new position as he has been with Detrex for over 15 years and has had wide experience in various sales, service and production departments. He is an expert on modern metal cleaning and finishing practices, and has been a key figure in the development of solvent vapor degreasing as well as alkali and emulsion cleaning.

Atlas Appoints Heiberger as Senior Lacquer Chemist

Appointment of Philip Heiberger as Senior Lacquer Chemist of the Stamford, Conn., branch is announced by G. B. Work, General Manager of the Atlas Powder Company's Industrial Finishes Department.

Mr. Heiberger was with R. L. Evans Associates, Chemical Consultants, in New York City, for four years and later with a large eastern manufacturer of industrial finishes. He is a graduate of Brooklyn Polytechnic Institute and holds an M. A. degree in Chemistry from Cornell University.

PAINT STRIPPING

We remove

Baked, Air-Dried, Plastic and all other finishes from all base metals.

For quick, efficient and low cost service write or call

ALCHEM METAL PROCESS CORP.

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Circle 7-0238

Economical protection for your sprayers

PULMOSAN

R-151 Respirator

Built for durable service. Longer-life cartridge. All parts replaceable.

Pulmosan Safety Equipment Corp.

644 Pacific St., Brooklyn 17, N. Y.

Cheap Thinner Caused Mottled Effect

By Floyd H. Cohagan

I WAS ASKED to go to a plant and help solve a problem in finishing. They were getting a mottled effect with ready-mixed metallic finishes in all of the colors they were using.

First I checked the method of application and found it to be all right. The pressure used in the pressure tank and at the spray guns was okay, so that made it definite that the trouble had to be somewhere else.

The next thing I looked for was the consistency of the material. I found that the thinner was very slow in "cutting" the metallic colors; a lot of stirring was required before the material was properly thinned to a satisfactory spraying consistency.

The thinner was "weak" in solvent power, so I recommended a change of thinner. I asked for a thinner that is rich in solvents. Such a thinner was obtained and when the metallic colors were mixed with this "rich" thinner and used in the regular way the difficulty disappeared and the finished work came out beautifully.

Since then I have heard of two more cases of the same kind. In each case the thinner was the cause of the trouble. A good rich thinner is always the best and cheapest.

Whenever it is possible, I recommend using all materials from the same source of supply; then there is only one supplier to deal with. The plant to which I was called in reference to the foregoing problem, was using primer from one source, metallic colors from another source and thinner and top coat from still another source, making three sources of supply in all.

It is difficult to place responsibility when any finishing trouble occurs, if three or more concerns are supplying the finishing materials.—C.C.

BARRETT "FILWHIRL" ENAMELERS make easy work of many difficult coating problems

The Barrett Centrifugal Enameler

The Barrett "Filwhirl" Centrifugal Enameler provides a sure, clean and economical method of applying materials to parts or products that can be rotated. It saves coating material, time and expense. It is designed for bulk handling, and speedy production requirements.

It has proven highly successful in coating helical springs, clips, clasps, zipper parts, bead and link chain, toys, automobile and luggage hardware, misc. metal stampings, castings, etc. Excellent results are also obtained with japan, lacquers, varnishes, paints, waxes. No drips or fatty edges.

Furnished in spindle post, fixed bowl, and carrier types, in several capacities. Safety features included and auxiliary equipment is available.

Send a few representative samples to be processed and submitted for your examination.

THE LEON J. BARRETT COMPANY
Designers and Builders of Centrifugal Machinery
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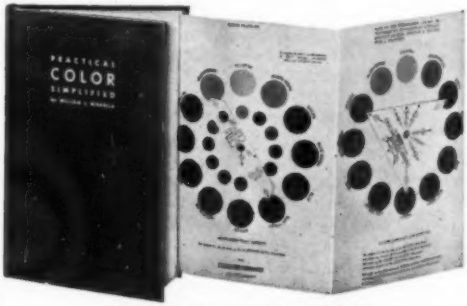

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INDUSTRIAL FINISHING, 1142 N. Meridian, Indianapolis 4, Ind.

Industrial FINISHING Editorial

What Is Used to Make Flat Lacquers

★ A flat lacquer is more than just a gloss lacquer to which a transparent flatting agent has been added. Different flatting agents have specific characteristic effects, and these specific effects are often modified by the other non-volatile ingredients, and even by the solvents in the lacquer.

Inorganic pigments such as dehydrated silica gel, crystalline and diatomaceous silica, and some others tend to harden the film and make it dry hard faster. They improve the print-resistance of the film. But these properties and others are profoundly modified by other ingredients in a given lacquer, so that the same flatting agent in different gloss lacquers may produce varying increases in hardness, print-resistance, etc. The make-up of the non-volatile portion of a gloss lacquer also has a profound effect on the flatting efficiency of a given agent. For example, if the same amount of the same flatting agent is added to two different gloss lacquers of the same solids level, two quite different sheens may be obtained.

The organic flatting agents, such as soaps and waxes in general, tend to produce softer films than inorganic types, especially if enough is used to produce a very dull sheen. The free acid content of the lacquer influences this property because of the tendency of some free acids to split up the soaps into other materials.

Waxes tend to increase the slip and mar-resistance of some types of lacquers, and to reduce their tendency to print, or show pressure marks.

The vital characteristic of clarity in a flat lacquer involves far more than the specific effect of different flatting agents. The amount and kind of nitrocellulose, different resins, different plasticizers, and even different solvents—all have a bearing.

For these reasons a flat lacquer should always be considered for its own specific characteristics. The tendency to generalize too much almost always leads to faulty conclusions.—LAB. CHIEF.

★ *Guest Editorial . . . Many readers can write an excellent editorial—two or three paragraphs that present a timely suggestion or valuable idea which will stimulate thought on a live subject. The Editor welcomes guest editorials and pays for those used.*

Production Planning for Smooth Operation

★ Beavers, ants and bees are the more intelligent members of the animal kingdom. They act instinctively upon situations where their well being and survival depend.

Man is a planner. Sometimes he plans well and some times he doesn't. It is this freedom of choice that makes him superior to other forms of animal life. Some people question the wisdom of endowing man with this freedom of thought—and judging from what one may gather by observation, there is ground for suspicion that they may be right. Where man is, there is planning of some kind. It may be good or it may be bad.

Why plan? Many experienced fore-

men do a fairly good job without conscious planning, but they have to work harder than they would if they had followed a well thought-out plan. It is not enough for a plan to be merely good; it must be good for something. Otherwise it is good for nothing.

Production planning might be defined as mental effort directed toward reaching desired objectives through a series of natural operations in sequence. A foreman who has the right man for the job, along with proper instructions, is taking a step in the right direction. Details that are apt to go wrong should be marked for special attention. Concentration along this line will give maximum results with minimum supervision.

The need for a foreman's supervision is imperative, for no matter how well a job is planned there are always emergencies that cannot be foreseen and provided for in advance. Any plan that the foreman may use should be flexible enough to take care of these emergencies.

Wise production planning should lay out volume and production flow. Records of performance should be systematic enough to enable the manager to tell at what stage any work in process will be found. It also tends to lower "unemployment within employment" that is, where workers are obliged to wait for material or work in process. Impatience and irritation give way to disgust and discontent when production flow is spotty. Situations like this also pave the way for labor trouble where incentives or bonus plans are in effect. A worker quits trying when he sees there is not enough work in process for him to make the extra money that the company's bonus plan provides. Here indeed, is fertile ground for the professional trouble maker, so plan your work and work your plan.—FRED BOYNTON.

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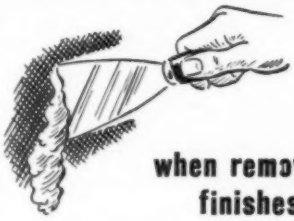

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Value of Slip Agents In Finish Materials

★ Slip agents are materials added to coatings to give a slick, slippery feel to the surfaces. Waxes, oils, higher acids and alcohols, fats, wetting agents, and certain silicones are some of the many materials used. These are added in small amounts to the lacquer, varnish or enamel. The slip agent comes to the surface, generally while the solvents are evaporating from the freshly applied coating. The film dries leaving a smooth surface. Some coatings develop slip only after a period of time—after the slip agent has slowly spewed out. Other coatings must be heated to develop slip. Certain silicones are especially effective in producing a slick surface. Minute quantities often put an end to difficulties with orange peel and flow marks.

The property of smoothness is a real merit in several types of finishes. The field of paper coatings is an example. Coated sheets of paper must not stick together; they should slide away from each other with ease. It is a definite sales advantage for the lacquered covers to magazines, books, pamphlets, etc., to have a smooth pleasant "feel." Playing card lacquer is a prime example of a finish that must have good slip, as anyone who has ever played with a sticky deck knows.

In the field of appliance finishes, the proper slip agents are important to provide surfaces which will not mar or scratch readily during handling, transit or use.

Slip agents often, but not always, act as anti-block agents. They may add to or detract from gloss, mar-resistance, flow, and film strength, as well as other properties. It is the job of the paint manufacturer to utilize the proper slip agent where needed. —E.V.G. of the Laboratory.

Roller Coating

Most chemists and development technicians are aware of the many economic merits of the roller coating methods of application for flat surfaces. Where this method can be used, noticeable economies in finishing material and handling can be effected.

In strip-coating, where a continuous strip of metal is coated from the roll of steel and then re-rolled after painting, one or both sides of the metal may be painted simultaneously. The merits of this method of application are considerable on long runs.

Most roller-coated metal must withstand fabrication after finishing. It is not generally known what severe requirements are demanded from the finishes used. Some end uses require only that the finish shall withstand moderate forming and drawing operations (cans, curtain rods, strapping, trays, etc.). Other applications require that the coated metal shall successfully fabricate into knurled and threaded screw-caps, and shall then withstand pasteurization, pressure-processing and boiling water tests.

At the present time, both oleo-resinous and alkyd materials are being used in roller coating enamels. Vinyl-resin-based coatings have certain intrinsic advantages in applications involving deep draws and resistance to certain foods, and these coatings are destined to become more popular in the field when drawbacks of cost, flow and stability have been overcome. Vinyl sizing coats are already enjoying wide use in the metal decorating field.

This method of application, where it can be used effectively, gives such economy and uniformity, that it is destined to find wider use in certain manufacturing operations.—J.H.S.

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Stain and Finish the Hidden Places Too

★ One of the hallmarks of fine furniture is the little extra touches that distinguish real craftsmanship from haphazard hit-or-miss methods. In finishing fine furniture one of these little extra touches is staining the pieces all over. The undersides of chair seats and novelty tables, the backs of dressers and chests, and both sides of the headboards of beds are all seen occasionally, even when on the dealer's floor and in the home. If the wood there is raw, the effect is decidedly toward cheapness.

Some firms even go so far as to put a coat of lacquer sealer over the stain on these "hidden" surfaces. Many manufacturers and dealers feel it is as important to have a uniform color and smooth surface at these places as on the inside surfaces of dresser and chest drawers. Of course, the problem is simple if the piece is small and light so that it can be dipped in stain; but to apply stain on the backs of dressers and chests involves merely a quarter turn on the easel and a few quick passes with the spray gun.—Sol.

The Master Finisher

★ Those who deplore the passing of the old-time finisher, with his secret tricks and slow painstaking methods, often fail to see it as a part of a larger picture—the passing of an era. Some of these master craftsmen did work that has not been excelled.

On the other hand the old-time craftsman would probably be lost in a modern finishing room. He spent his entire working lifetime using not more than perhaps a half-dozen or a dozen different materials. He had

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time to learn the best ways of using them over the years. Very likely he would lack adaptability and would stubbornly refuse to face the facts of progress and change.

Perhaps today we have too little patience. On the other hand the enormously increased tempo of developments in the finishing materials field, as well as in production equipment and finishing methods, has demanded adaptability. The typical master finisher today is likely to be keen, alert and adaptable, with an eager eye and ear for new ideas, new materials and new methods. His work may be as painstaking as that of his father, but if he gets "set in his ways" he may quickly lose his value. By refusing to consider new ideas and materials he may actually put his firm at a competitive disadvantage.

Patience and *understanding* are as important as ever, but to these must be added *adaptability* and *imagination*. I submit that a top-flight finisher today must have more "on the ball" than did his father or grandfather of a generation or so ago.—MOORE.

Where We Get Our Raw Materials

★ Few people who use the enamels, lacquers, varnishes and stains designed for product finishing realize that the raw materials for these products are drawn from all over the world, and from every branch of the chemical industry. Certain raw materials exist in usable form, requiring only recovering and slight refining before they are used in the industry. Many others are created by chemical synthesis from elemental raw materials.

Natural resins come from India, the East Indies, Africa and South America. Synthetic types may be

NATIONAL PAINT DICTIONARY

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The long-awaited revision of the National Paint Dictionary is now ready for distribution. This is the third edition by its author, Jeffrey R. Stewart. The size of the book has been reduced to 6x9-in. to meet popular demand, and to facilitate its use in a standard library shelf. The number of pages has been increased from 216 to 704, and a type face has been used which provides maximum legibility.

The terms included in this dictionary may be divided into six categories (though the largest proportion falls into the first two groups) as follows: 1) industrial raw materials used in the production of paints and allied products; 2) trade names of raw materials and certain finished products; 3) terms describing processes, methods, systems, etc.; 4) terms denoting scientific instruments used primarily for evaluation purposes; 5) terms denoting colors, optical effects, textures, etc., and 6) miscellaneous terms which give general information to the reader, jargon expressions peculiar to the industry, etc.

Copies of this new reference book are priced at $7.50 each, cash with order.

★

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made from petroleum, coal, air, limestone, and water. Oils come from China, Manchuria, South America and from numerous domestic sources; or may be synthesized from petroleum.

Pigments may occur naturally, such as the siennas and umbers along the shores of the Mediterranean. Pigments may be converted from the crude ores by chemical processes, or they may by synthesized by precipitation from solution.

Solvents are refined or synthesized from petroleum, coal, natural gas, molasses, and a number of other basic commodities.

Nitrocellulose and the cellulose esters and ethers are made from cotton and purified wood pulp. Chemical plasticizers used in lacquers are synthesized from elemental raw materials.

In the beginning of the paint industry, only natural raw materials were available, limited in number and variable in quality. This was the situation for many centuries; indeed, until the first quarter of the Twentieth Century. Since that time development of the chemical industries has brought to the market many thousands of totally new raw materials. Some are the older materials made from different sources, while others are long-familiar materials so modified and improved as to bear little resemblance to the original.

Today practically all the raw materials used in the paint industry are the product either of chemical synthesis or of chemical refining of old familiar materials. The paint industry now, instead of being a putterer's paradise, is a field where not only technical developments but also all phases of management, from purchasing and production to sales and service, are guided by scientifically trained men.

In few industries is there such a wide and diversified range of thousands of raw materials available. Likewise, in few industries is there so much variation in the properties or numbers of finished products. Instead of there being only a few fairly well standardized lacquers, for example, there are literally thousands of different lacquers, each designed for a specific purpose.—M.C.L.

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ment of design at Corning Glass Works for mass produced glassware, and in the improvement and expansion of design at Steuben Glass Co., a subsidiary of Corning.

Plans are now in progress to furnish advisory service to an outstanding manufacturer in ceramics, furniture and carpeting. The purpose of the department is to furnish advisory service to firms having a designing department and to assist in locating and training personnel for participating companies.

Theodore S. Jones is director of the industrial design department He said, "It would take out of the ivory tower the skills of artistic design and put them to work on a practical basis."

Manufacturers are becoming more design conscious for reasons of production economy, appearance and the functional use of their products. The consumer will be the beneficiary.

Consider Safety on New Operations

Engineering safety into new operations is not only common but good business. It is much simpler, more effective and less expensive to begin with safety than to apply preventive measures to industrial operations after a new installation has been completed. It is always easier to change the location of a machine or the angle of a stairway on paper than to make corrections after operations are started. Often the need for costly ventilation, manual handling methods, and personal protective equipment can be eliminated or appreciably reduced by carefully checking new designs for safety.

In the final analysis, everyone who can contribute ideas which will make the new operation more efficient should be consulted, and yet, in some

plants, the safety engineer is not asked for his recommendations until the plans have been released for construction or until the new installation is well underway.

The time to begin safeguarding a new operation is at the planning stage before the final designs have been prepared. It is easier to change preliminary drawings than it is to revise final plans, especially after they have been approved by the major operating divisions concerned and a firm price estimate has been made. The earlier safety measures are considered, the better.—*National Safety Council.*

Booklet on Mahogany

Designed primarily to aid retail salesmen in selling mahogany, a new 21-page booklet published by the Mahogany Association, Inc., 75 E. Wacker Drive, Chicago 1, Ill., brings out many facts about this valuable cabinet wood.

It includes 107 questions and answers on 13 different categories, all pertaining to mahogany.

Popular Misconceptions About Wood Finishes

by Rollin H. Wampler

NO ONE CAN BE a master in more than one or two fields. It is not surprising, therefore, that with regard to wood finishes many misconceptions exist in some people's minds.

One popular misconception about wood finishes is that they exclude moisture from the wood permanently. If this assumption were true, painting wood should prevent swelling in a permanently damp location. Also, it would prevent the growth of the fungi which cause rotting, since the growth of the fungi requires a relatively constant high level of moisture in the wood, as well as warmth.

Every practical finisher and master painter knows that paint alone will not prevent wood from swelling or

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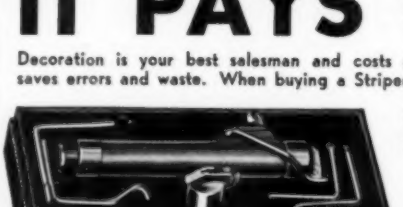

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rotting in a permanently damp location. As a matter of fact, the specie of the wood has more influence than whether or not it is painted under these conditions. For example, unpainted cypress, cedar, or redwood in contact with the earth or with permanently damp concrete will still be sound when well painted poplar or pine has long since rotted out. This is not to imply that paint has no value under these conditions. It has relatively far more value in preserving wood exposed to intermittent or occasional rain or high humidity.

Since the great majority of wood structures are exposed only to the latter conditions, finishes have become firmly established as preservative agents for wood. Under conditions of permanently high moisture concentration, special measures other than painting alone must be used to give important improvements in the durability of the wood. These special measures include saturation with rot-inhibiting sealers and impregnating the wood thoroughly with rot-inhibiting and water-repelling materials. This treatment may be followed by painting.

The assumptions from which these unwarranted conclusions are drawn can easily be proved false. Cut a strip of wood into two equal lengths and apply three coats of spar varnish to one piece on all surfaces. Now weigh both pieces and immerse them in water. Remove and weigh them every few hours, and then every day after the first. It will be found that the finished wood will eventually take up about as much water as the unfinished piece, although the unfinished piece will reach its saturation point much sooner.

This experiment indicates that a surface finish only *retards* the entrance of moisture. This retarding effect has real value in preserving wood exposed to the weather or to varying

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conditions of humidity indoors. By greatly retarding the entrance of moisture, finishes minimize warping and swelling, cracking, and the loosening of fasteners due to compression-shrinkage. Finishes serve to keep the moisture content of wood relatively constant where it is exposed to varying conditions of moisture.

It should be pointed out that different types of finishes vary in their moisture-excluding effectiveness. But even the most effective will not permanently seal out the moisture in a permanently wet place.

Another popular misconception is that surface finishes will conceal or minimize surface irregularities in wood. It is true that enamels and paints will effectively hide mineral streaks and color faults in wood. Stains will not, contrary to another popular misconception. In fact, stains are primarily designed to enhance grain patterns by increasing color contrast in the wood.

No surface finish will, of itself, seal up scratches, fill in dents, or eliminate roughness. In fact, the finish usually magnifies such faults. If the wood is not perfectly smooth to begin with, it is almost impossible to correct roughness with a finish. It is far more economical to make the wood smooth first.

Still another misconception is that there is very little difference between finishes of the same type; that is, all lacquers would be much alike, as well as all varnishes, all synthetics, and so on. As a matter of fact, due to the enormous number of raw materials available to the paint industry and to the great latitude in formulation in each group, there is as much variation within any group as there is between groups.

Some dipping lacquers, for example, are slower in setting out of tack than

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some spraying varnishes, although the reverse is usually true. While each group has some definite distinguishing characteristics, there are many materials which violate the general rules. These facts make it important, when selecting a type of finish, to fully inform the supplier of the specific requirements desired so that he can design his materials to fit your material and operating requirements.

Two types of materials are called wood fillers. This results in confusion, and still more misconceptions arise. One type is a clear liquid containing little or no pigment. It is more correctly called a wood sealer. This type is used on woods to seal very tiny openings and to prevent absorption of finishes applied over them. It penetrates under the surface and increases water-repellency, as well as improving the mechanical adhesion of the finish. "Fillers" of this type have no value in filling the large pores in open-grain woods, such as oak, walnut, mahogany.

Paste wood fillers consist largely of pigments with just enough binder to hold the particles together. They are applied over open-pore woods such as those just mentioned. The film is then allowed to set and the surplus is wiped off *across the grain*. This operation fills the large open pores flush with the surface. Fillers make it possible to get a smooth finish over these open-pore woods.

Paste wood fillers are also valuable for sealing up rough end-grain and preventing it from absorbing surface finishes. Incidentally, the Forest Products Laboratory has discovered that filling the large pores in oak siding with paste wood filler greatly increases paint life over this wood. This fact is largely of academic interest only because of the enormous labor and expense of filling the pores in very large surfaces. It is important to differentiate between *penetrating*

(Continued on page 124)

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sealers and *paste wood fillers* because the former are often called fillers.

When furniture plants first began conveyorizing their finishing operations, with the consequent necessity for force-drying at some steps, a popular fallacy arose to the effect that force-drying would cause warping, splitting, and even cracking of the harder cabinet woods, such as maple. It was also feared the heat would damage glue joints. Experience has exploded these theories.

If the wood is properly seasoned so as to relieve strains, and if the moisture content is kept at 8% or 9%, there is little danger of splitting or warping, provided the construction is sound. Properly made glue joints do not seem to suffer at conditions of as long as four hours at temperatures up to 140° F., particularly if some moisture vapor is introduced into the oven. Experience has shown also that about 160° F. seems to be the upper limit for safety in force-drying finishes on wood. In special cases higher temperatures can be used provided the wood is preheated up to 200° F. and cooled just prior to finishing and force-drying.

About Filler-Stains

MANY finishers who might use them to advantage do not know about the availability of filler-stains which reduce staining, wash coating, sanding and filling to a single operation. Some of these filler-stains are even made with acid dyes as the staining component, and so formulated that they can be sealed over, in as little as 30 minutes of air drying.

These filler-stains are used in the same manner as ordinary paste wood filler. They come as a paste or a heavy liquid that requires thinning. The wood should be smooth and uniform in color and texture. The material is applied by brushing, spraying, or dipping; and wiped just like a filler. Local color control and shading or highlighting can be done with shading stains.

These filler-stains are useful for

novelty furniture, radio cabinets and other similar articles. They are not used on quality case goods because they do not give quite the clarity or tone of a non-grain-raising stain-wash coat-filler system. However, on novelty furniture with relatively small flat surfaces, the results obtainable from high quality filler-stains are often not distinguishable from those obtained with the usual three-step system.—H. W. R.

Rexton Finishes, Inc., New Firm in Irvington, N. J.

REXTON FINISHES, INC. has been formed to produce specialized technical coatings with its manufacturing facilities in Irvington, New Jersey.

Heading the company will be Albert A. Miesem, who will have associated with him, S. A. Metric, W. H. Stephens, R. V. Kirk, R. K. Hungerford, Paul Anderson, G. F. Caskey, W. G. Mengel and P. J. Thouluc. All of them have had extensive experience in the products finishes business—in fact, the average experience of the key personnel is 20 years, while their average age is only 41 years.

Rexton's product line will embrace a wide range of modern, synthetic and lacquer coatings specifically designed to meet the particular needs of their accounts.

Production commenced September 1, and while the initial accounts served are on the Eastern Seaboard, Rexton expects to eventually extend its service to the principal industrial centers in the United States.

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